

The Iron Age

A Review of the Hardware, Iron and Metal Trades.

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Wire Straightening and Cutting Machinery.

For many of the numerous uses to which wire is put, it is absolutely necessary that it should be delivered as a raw material for manufacture, so to speak, exactly straight and in a given length. The devices adopted to deprive wire, as it comes from the wire drawer, from irregularities in form are numerous variations of one principle, that of passing it through a number of rollers, the delicate adjustment of which is one of their chief drawbacks. Mr. John Adt, of New Haven, Conn., who has devoted many years of study and experiment to this class of machinery, has left the trodden path by introducing a novel arrangement for straightening wire. Instead of rolls he employs a revolving slotted mandrel, containing a number of dies, two of which bear upon one another from opposite sides. The space between them in the axis of the mandrel may be widened or narrowed by means of radial screws bearing upon their ends, so that an adjustment is readily made. This revolving mandrel is shown on the left of the machines in the accompanying illustrations. The wire, passing out of the straightener, is cut automatically into any lengths required by the mechanism shown, an adjustment changing the speed of feed. For larger pieces there is danger that when the straightened wire is run out too long without support, the outer end will sag down, and that, if fed out by power against a gauge, it will spring or bend before it can be cut off, so that the lengths are not of the exact dimensions required. In order to obviate this Mr. Adt has devised the attachment shown in Fig. 1, which, in this case, is made for 5-foot lengths or less. We understand that though but recently perfected, these machines are already in operation in three large wire manufacturing plants in this country, besides a number of smaller concerns, and are giving, as far as known, entire satisfaction. One establishment has three in use, each for a different kind of work, one of which when tested straightened wire of $\frac{3}{8}$ inch diameter perfectly, and cut it in lengths of 16 feet at the rate of six pieces per minute, running at a moderate speed. Four sizes are furnished at present, for cutting any size of wire up to $\frac{1}{2}$, $\frac{3}{4}$, $\frac{1}{2}$ and $\frac{3}{8}$ inch respectively, and machines to work larger wire can be had if required, also the attachment shown above for any length desired.

Indorsement Without Recourse.

The Boston Commercial Bulletin prints the following, of interest to business men:

When an indorser of a note or other negotiable instrument places against his signature the expression "without recourse," it is generally supposed that his liability then ceases. But, in an important legal contest recently decided by the supreme court of Kansas, a view of the matter was taken which, while it is undoubtedly legally correct, presents considerations of a character not generally taken into account by business men, and going to show that a warranty still remains in spite of the use of this expression. The court, in its opinion, cited the decisions hitherto given on the question, and, as the subject is of importance to all business men, we will briefly summarize the opinion.

The particular case brought before the court was that of *Challis vs. McCrum*. Plaintiff in error loaned one Ege \$250, and took his note therefor in the sum of \$265, payable to Richard Probasco, or bearer, and secured by mortgage. Long after its maturity, and in 1876, several payments having been made thereon in the meantime, plaintiff in error sold the note for its then face value to defendant in error. At the time of such sale he endorsed it "without recourse, W. L. Challis." McCrum sued on the note. Ege pleaded usury. The plea was sustained, and McCrum recovered \$220.90 less than the face value of the note, for which sum he brought this action. A demurrer to the petition was overruled, and this ruling was now presented for review.

The Supreme Court readily admitted that no action would lie on the indorsement, for by his written contract Challis expressly declined to assume the liabilities of an indorser. If sustainable at all, it must be against him as a vendor and not as an indorser, and upon the doctrine of an implied warranty. Independent of any matter of indorsement, what implied warranty is there in the transfer of a promissory note? Two things are clear under the authorities: First, that there is an implied warranty of the genuineness of the signatures; and second, that there is no warranty of the solvency of the parties. About a dozen authorities are then referred to on this point.

But, in the case before the court, the signature of the maker was genuine. The objection is that it was never his legal obligation to the full amount for which it purported to be. How far is there any implied warranty in this respect? The first case referred to was where one of the makers of a note was insane. The vendor made a written assignment, in which was a description of the note, and the court construed this as an express warranty that the instrument was the legal obligation of the apparent makers, and, one being incapable of contracting, gave judgment against the

vender on account of this breach for the amount received by him. While the judgment of the court rested upon the fact of an express warranty, the judge who writes the opinion expresses his individual conviction that the same result would follow on a mere transfer without any express warranty, and quotes approvingly an extract from a legal authority "that there is an implied warranty in every sale that the thing sold is that for which it was sold."

In another case, the owner of a note procured the indorsement of a minor, and then put the paper in circulation. He was held liable to a subsequent holder. Chief Justice Shaw, who delivered the opinion in the case, said: "Whoever takes a negotiable security is understood to ascertain the ability of the contracting parties, but he has a right to believe without inquiring that he has the legal obligation of the contracting parties appearing on the bill or note. Unexplained, the purchaser of such a note has a right to believe, upon the faith of the security itself, that it is indorsed by one capable of binding himself by the contract which an indorsement by law imports."

Another well-known judge laid down the law in these words: "The authorities state the doctrine in general terms that the vendor of a chose in action, in the absence of express stipulation, implicitly warrants its legal soundness and validity. In peculiar circumstances and relations, the law may not impute to him an engagement of this sort. But, if there are exceptions, they certainly do not exist where the invalidity of the debt or security sold arises out of the vendor's own dealings with or relation to it."

On account of the above precedents, and for the reasons given, the Supreme Court now lays down this general principle: "The transfer of a note by indorsement without recourse implies a warranty that the prior signatures to the paper are genuine, and that it expresses upon its face the exact legal obligations of all such prior parties."

The Proposed Maryland Ship Canal.

Hon. William Kimmel, member of Congress from the Third District of Maryland, has prepared a report to the House Committee on Canals and Railways on the proposed Maryland and Delaware Ship Canal. Col. Kimmel was appointed by the committee to which the matter was referred as a sub-committee to ascertain the most suitable route for the proposed canal and its cost. From Col. Craighill, who surveyed and estimated on the various routes, Col. Kimmel obtained facts and figures on which to base his report. The report will recommend the route across the Peninsula, leaving the Chesapeake Bay at Queenstown, Md., and running across to Lewes, Del., discharging into Delaware Bay five miles above the Delaware Breakwater. The length of the canal by this route will be 51 miles. It will be 200 feet wide and 25 feet deep, and capable of accommodating the largest class of vessels. Its width will enable two of the largest steamships or sailing vessels in tow to pass each other with ease. There is no natural waterway, the entire line being excavated. In answer to objections the report states that the canal is to be used by day or night, and will have no toll charges. It is proposed to have no locks other than tide locks. The report recommends an appropriation of \$37,000,000, which is allowing a margin of \$6,000,000, as from close and authentic calculations it is believed the canal by the route recommended can be built for \$31,000,000. The advantages to foreign commerce are apparent. Vessels bound to any European port north of the Mediterranean Sea can, by going through the canal, save 225 miles, which would otherwise be consumed in sailing down the Chesapeake Bay and around the capes. This would make the trips of the regular foreign lines of steamships nearly two days shorter, and would in a similar manner expedite irregular marine traffic. The most important feature of the report is that it recommends that the canal be built under the supervision of the War Department, to serve the combined objects of harbor defense and an aid to commerce. Col. Kimmel, while serving on the Naval Committee, obtained an idea of harbor defense, on which he bases this part of his report. It argues that in the naval equipment of this country there should be two classes of vessels—one for "harbor defense," the other, "commerce destroyers."

The use of the canal, in case of foreign naval war, would be manifold. Any vessel which was of sufficient size to carry a gun could be utilized in defense of the coast adjacent to the Delaware and Chesapeake Bays, by reason of their ability to retreat from a heavy foe by running into shallow water. Heavy war vessels could also pass through the canal from one bay to the other. It is shown conclusively, without further details, that with the advantages of the two great bays and the canal the ports of Philadelphia, Chester, Wilmington, Baltimore, Washington, Norfolk, Richmond and adjacent places could be easily protected. It is also shown that in case the outlet to commerce by way of the Delaware Bay is blocked, vessels from the ports named can find egress by way of the Chesapeake Bay. Col. Kimmel feels confident of success in obtaining the passage of the measure.

The Italian government is about to construct a large observatory on Mount Etna. A site has been selected at a height of 9652

and makes similar claims upon thulium, in which he is backed by Lecoq de Boisbaudran.

Mr. J. N. Stockwell, of Cleveland, announces, in a recent number of the *American Journal of Science and Arts*, that he has discovered

A SECULAR INEQUALITY IN THE MOON'S MOTION.

which he ascribes to the fact that the attraction of the earth, being a spheroidal body, is different from a sphere having the same mass. He states that he has found several inequalities in the moon's motion which are not recognized by existing theories.

English shipbuilders look forward with much interest to the building of

A CURIOUS YACHT FOR THE EMPEROR OF RUSSIA.

a craft designed by Admiral Popoff, the originator of the circular ironclads. The ship, which is to be built of steel by Messrs. John Elder & Co., is certainly to be a novelty in naval architecture.

The London Times gives substantially the following description: She will be 230 feet long and 153 feet beam at the widest part, and is to draw 6 feet of water throughout the principal part of her length; but at the stern, where it is necessary to get depth of water for the screws, the body is carried down, probably with very fine lines, to 16 feet draught of water. She is guaranteed to steam 14 knots per hour, and the builders will receive heavy premiums for every tenth of a knot the vessel steams above 15 knots. Her displacement is given as 3920 tons, with coals on board for five days' steaming, and the indicated horsepower is estimated at 10,500. She is to be propelled with three screws situated at the stern, one in the middle line of the vessel, and the other two, one on each side, 18 feet from the line of the center shaft, and 2 feet 6 inches before the center screw propeller. The three screws will be each 16 feet in diameter and 20 feet pitch, and will be four-bladed. There will be three separate engines, with three boilers to each, making nine in all. The vessel will have one rudder placed abaft the center screw propeller, and there can be little doubt that, considering the comparative shortness of the vessel, the turning power will be quite effective. The shape of the vessel is described in the Times as a sea palace erected on the back of a huge steel tubot, and this is pretty much what it will be.

The total depth of the vessel is said to be 46 feet, and of this 6 feet are below water, but it must not be supposed that the remaining depth of 40 feet of side rises vertically out of the water. The greatest breadth is at the water line, and above this the side falls in rapidly, so that at the middle of the length of the vessel, at a height of 12 feet above the water, it is 21½ feet on each side within the breadth at the water surface. From this point the sides rise vertically, and inclose the saloon and other accommodation, forming a superstructure on the tubot-like vessel or raft. Of course, if the sides rise vertically from the water level, there would be still greater deck room and space for state apartments, but the vessel would then be exposed to blows from the sea tending to render her uneasy, and to thwart one of the main objects of the designer, viz., ease and comfort at sea for the imperial owner.

Before the Société d'Encouragement M. de Luyne, representing M. de la Bastie, described

RECENT PROGRESS IN THE MANUFACTURE OF HARDENED GLASS.

He showed a number of samples, and finished with the following striking experiment: Ordinary glasses were placed in a basket with drinking-glasses of the same shape in hardened glass; after shaking repeatedly, the ordinary glasses were all broken, while the hardened glasses were intact. M. de Luyne stated that the processes of manufacture have been simplified and combined with the ordinary operations of glass-blowing, so as considerably to diminish the expense and give more regular forms and more perfect execution. Objects made with the liquid material, when they are still red, are thrown directly into the tempering bath, and are not again heated to the melting point, as at first, which often causes a change in their form. Bottles, drinking-glasses, lamp-glasses, and other concave objects containing air are received on a curved

tube, a sort of syphon, which at the moment of immersion allows the air to escape, while the liquid enters the cavity without difficulty. All these improvements have been adopted at the glass works of Choisy-le-Roi.

Herr Koerner, a student at the Freiberg School of Mines, proposes to

PREVENT COLLIERY EXPLOSIONS

by the use of a lamp which embodies an interesting novelty. Its action is based upon the property of platinum black, of condensing on its surface not only oxygen but also light carburetted hydrogen. In a wire gauge chamber are placed pieces of pumice-stone, impregnated with platinum black, and all the air for maintaining the combustion passes through the chamber, all the fire-damp is destroyed before it reaches the open flame.

Prof. Thurston, who is indefatigable in his efforts to determine exactly the value of American constructive materials, has, in a paper read before the Saratoga meeting of the American Association for the Advancement of Science, taken up the important subject of

THE STRENGTH OF AMERICAN TIMBER.

While the experiments made have been too few in number to be complete, they form a valuable beginning of an investigation which deserves far greater attention than has yet been devoted to it. The following tables embody the results reached thus far:

TENSILE TESTS.

Wood.	Length—Inches.	Diameter—Inches.	Tensile strength.	Total elongation.	Weight per cubic foot in pounds.
White pine....	4	0.527	6877.5	0.725	29.376
Yellow pine....	4	0.532	2070.2	1.050	46.656
Locust.....	4	0.538	2851.7	1.250	57.024
Black walnut....	4	0.538	9785.4	0.850	38.016
White ash.....	4	0.544	15490.5	1.475	24.560
White oak.....	4	0.481	13207.8	1.300	41.472
Live oak.....	4	0.407	10309.2	1.150	67.392

TESTS BY COMPRESSION.

Wood.	Length—Inches.	Diameter—Inches.	Compressive strength.	Compressive per cent. of length.
White pine.....	2.25	1.117	2592.6	3.498
Yellow pine.....	2.25	1.102	1351.3	2.966
Locust.....	2.25	1.073	14818.0	3.300
Black walnut.....	2.25	1.112	2001.7	1.254
White ash.....	2.25	1.104	8148.3	2.310
White oak.....	2.25	1.117	7143.5	3.300
Live oak.....	2.25	1.117	10409.8	3.366

TESTS BY TRANSVERSE STRESS.

Wood.	Length—Inches.	Breadth—Inches.	Depth—Inches.	Load.	Deflection.
White pine.....	54	3	3	3250	1.28
Yellow pine.....	54	3	3	16740	1.96
Locust.....	54	3	3	17680	2.70
Black walnut.....	54	3	3	7440	0.72
White ash.....	54	3	3	9720	2.50
White oak.....	54	3	3	9840	1.76
Live oak.....	54	3	3	11880	1.38

The Chinese in California.—The San Francisco Bulletin says that 161,405 votes were cast in the late election. Of these, 154,638 voted against the Chinese, and 5914 had not made up their minds. The vote in this city exhibited a unanimity still more striking. It was as follows: Total vote, 41,575; against Chinese immigration, 41,024; for Chinese immigration, 224. The proportion of Chinophiles in town and country is about the same. The only disparity is found in the numbers of those who have not yet come to any conclusion on the subject. In the city, in a vote of 41,575, these amounted only to 327. But in the State outside of the city, in a vote of 119,830, they rose to 5587. There never was such unanimous voting before in the history of the United States. There was only one vote, so far as our recollection extends, which in any way compares with that now under consideration. But that, too, was Californian. That was the vote in 1857, by which our people assumed the State debt contracted in defiance of the plain letter of the Constitution. That debt it has since almost liquidated. Never in the history of the country did a sovereign State make so clear a demand upon her sisters for assistance in a matter which, in consequence of the powers surrendered to the General Government, she cannot manage herself. The religious gentlemen in this city who telegraphed President Hayes that all the nice people hereabouts favored the Chinese, did not carry their congregations with them. The fact stands out that the press, as a whole, reflected accurately and truly the wishes of the people. Under the law which authorized the vote, the present Governor has now to prepare a memorial in behalf of the people of California, setting forth the facts of the election, and forward copies to the President and Vice-President of the United States, each Cabinet Minister, Senator, member of the House of Representatives, and the Governor of each State and Territory.

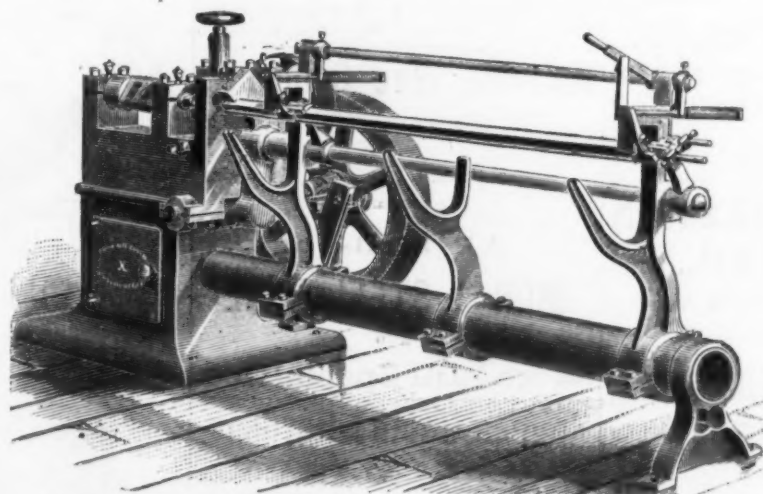


Fig. 1.—WIRE STRAIGHTENING AND CUTTING MACHINE, WITH ATTACHMENT.

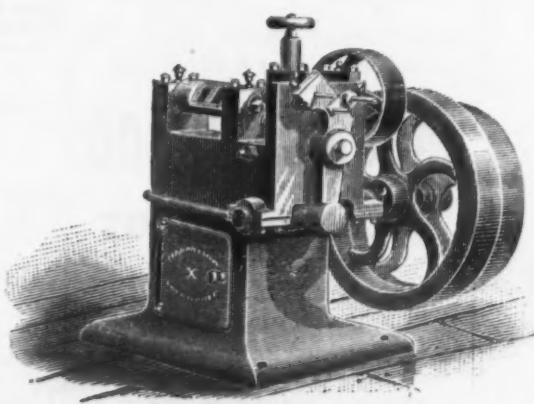


Fig. 2.—THE MACHINE WITHOUT ATTACHMENT.

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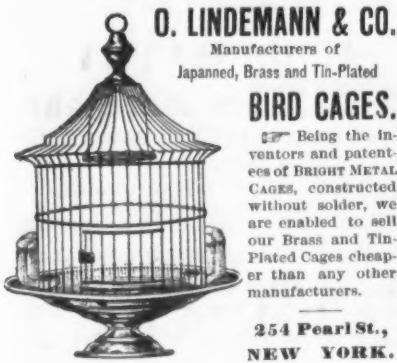
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What Free Trade is Doing for England.

The Sheffield Independent of October 11 prints the following remarkable editorial:

Slack, slacker, slackest—three degrees of comparison. Of all slack trades England's is the slackest. Why? Not because there is no business to be done of the sort which England is best able to do. Nothing of the kind. There is work for every man, woman and child in England—abundance and superabundance of work—but it is not done in England or by English people. It is done by foreigners. Wherefore? Ah, there's the rub. Not in consequence of any disability inherent in the English manufacturer, or in the English workman. They do but libel both who say it is the diminished hours and enhanced wages that have done all the mischief. Give our Englishmen fair play—give them even something a long way short of fair play—give them anything distantly approaching to reasonableness in the matter of duties on the products of their labor, and there will be no occasion for anybody in Sheffield that can work, and is willing to work, to be out of employment. With the present hours of working, and with some advance on the existing rate of wages, our workmen will—weight and quality being equal—beat the whole world. The world's work would have gravitated to our workshops, and this year—yes, this 1879—would have been, instead of one of the gloomiest, one of the busiest and merriest of years had business been allowed to take its natural course. Men nowhere from choice buy penknives whose blades are like tin, or scissors which are frauds, pretty to look at, but soft as putty; or table cutlery which, like the cutlery found in the American hotels, looks pretentious, but cuts like lead. *Bona fide* Sheffield work is honest work. Sheffield steel is sterling stuff, and Sheffield wares, like Sheffield's workmen, are, if sometimes a little lacking in finish, embodied sincerity.

If the business that should be in Sheffield is not here, it is purely because nations which are largely upheld by English money, and which cannot get on without English money, are laughingly making experiments upon the blind patience and unintelligent endurance of the English people. While sending their produce into our open markets, they close their markets against our produce, and they titter and rub their hands when they see this one-sided arrangement positively accepted and highly commended in England as—"Free trade!" The United States are not slack. Their mills, foundries and workshops are turning away orders, and new works are being hurried up to stop the overflow of demand which now trickles to England. For so careful are they that they would not even permit England to eat, like the dogs, of the crumbs which fell from the master's table. France, suffering under the double disaster of the vine disease and the dire consequences of Sedan, has no such inactive industries as ours. Maimed by the sword, and doomed, like another Atlas, to carry upon her shoulders a world—a world of new war debt—France is, notwithstanding, radiant, and affords to subsidize her sugar makers with such effect as to destroy an English industry employing 30,000 men. England, which might be, and which with fair trade would be, the busiest of nations, is the slackest in the world. In and near Sheffield, machinery worth a million sterling stands idle, depreciating in value day by day; in South Yorkshire the coal-pit owners are keeping the pits instead of the pits keeping them; in Lancashire there are mills of all sizes for sale, but no buyers and no bidders. The Board of Trade returns offer no encouragement. What is to be done? According to some—nothing. We are coolly told that England, the largest buyer in the universe, cannot help herself if she would, and ought not to help herself if she could. We are assured that a nation which possesses an America of her own larger than the United States, and which has, in addition, dependent empires, where sheep and herds innumerable await her call; a nation whose vast empire is a world in itself, waiting to exchange its produce for England's manufactures; a nation which can produce within its own far-reaching dominions sugars, silks, spices, cotton, wool, hides, corn, oil and animal food, as cheaply as any other nation, or within a fraction of the cheapness of any other nation, has, nevertheless, no option but to suck its thumbs and bear as best it can the leakage of business now going on. The persons who utter these words of feebleness give to their folly a fine name—they call it "Political Economy," and they insist that Adam Smith and John Stuart Mill are with them. Adam Smith and John Stuart Mill are not with them. On the contrary, Mr. Mill foresaw that circumstances might arise in which the hostile tariffs of foreign powers would call for measures of offensive defense, designed to extort from the self-interest of other States the fair dealing not otherwise to be obtained.

The preachers of contentment under the existing state of things ply us with inaccurate figures like those of Sir Louis Mallet—who is strangely wrong; with dogmatic assumptions, and with the complacent assurance that the more we pay to foreigners and the less they pay to us, the more we prove the "stability" of our commercial position. Of this method of securing increased wealth there is room to doubt, and where there is room for doubt there is room for discussion—which is the one thing feared by our admirers of the "stability" which comes by loss of trade. We doubt, for instance, whether a cask which is filling through a straw while emptying at the bung-hole is really increasing its contents. Our ultra free traders assure us that the cask is filling; but we doubt. The same ultra free traders take it for granted that the Americans and all the nations of Europe are the fools, and that they themselves are the only wise men. To us this seems rather a large assumption, and, once more, we doubt. The same superior persons inform us that although in private business the large buyer has great practical influence over dealers, it is not so with nations. To us this appears to be improbable, and, once more, we doubt. We even think there are producers who are as dependent upon our English gold as if they were annuitants, and who might by a few sharp strokes of fiscal policy be quickly

brought to their senses. The theorists who bid us accept their dogmatism for data ignore the great fact that John Bull is a ready money buyer; that he has great choice of markets in which to make his purchases; that he is the capitalist whose money keeps some of his rivals going; that he has within his own distant dominions the ready means of securing at no remote date cheap and good and inexhaustible supplies of nearly everything he needs; and that if it please him to give his custom to his customers, and to pay his money where his money will flow back to him, perhaps he may not prove such a simpleton as some would make him seem to be. Of course, he is told that he would be very foolish indeed to prefer to deal with the nations or colonies which prefer to deal with him; but this is a point on which he also can doubt. He asks foreigners to moderate their tolls upon his people's produce, and they ask him in reply what equivalent reduction or what fiscal compensation of any kind he on his part is prepared to offer in return? This question sets him thinking, for he is like poor old King Lear—he has given everything away already, trusting to receive, in return for his generosity, at least civil treatment. He is empty handed; to make himself empty handed he has untaxed a hundred luxuries, the small duties on which were unfelt, and has laid on a number of direct taxes which are felt and which are inquisitorial and irritating. Of his own wisdom in thus leaving himself without anything to bargain with—any *quid pro quo* to offer—he at last inclines to doubt. Indeed, his doubts are waxing serious. His children in the colonies stretch out their hands to him and say: "Do not fear dearth of bread, or of meat, or of clothing, for the potentialities we possess for supplying you are illimitable; cease to treat us as foreigners, and we with our own hands will pull down our fiscal barriers, and you and we will form under one common Zollverein a real Empire bound together by the common ties of race, religion, and interdependence." John reflects upon this appeal, backed as it is by the assurance that Canada, Australia, and New Zealand could undertake speedily to feed six England without materially making any man's bread-loaf the dearer, and he thinks there may be something in it. He has heard of such things as arrangements for keeping the family's money in the family, and when he remembers how he paid £20,000,000 to free his slaves, and then took off the duty on slave-grown sugar, thereby paying millions yearly to perpetuate elsewhere the very system he had just paid £20,000,000 to put down, he fears that his consistency and his common sense are alike open to doubt.

The Hudson River Tunnel.

Since the removal of all legal obstacles to the completion of the tunnel under the Hudson River, a few weeks ago, the work upon the shaft at the foot of Fifteenth street, Jersey City, has been pushed with such energy that it has now been sunk to its entire depth—65 feet. When the workmen had reached the depth of 40 feet water began to flow in upon them, and powerful engines were purchased to pump it out. After the completion of the shaft, another powerful pulsometer engine was ordered and was placed at the shaft yesterday to pump it entirely dry. Work on the tunnel proper will be begun next week, and in a short time, it is said, ground will be broken in this city in the neighborhood of Bleeker street and Broadway for the entrance on this side of the river. Men have been employed on the Jersey City side night and day, and the work has been done under the personal supervision of Colonel De Witt C. Haskin, of California, president of the tunnel company, and of the local superintendent, Commissioner of Works Benjamin Van Keuren. For the purpose of expedition it is proposed to work from both sides just as soon as the shaft on the Jersey shore is made perfectly clear. The shaft on this side will be located at the foot of Morton street. As soon as work is commenced on the New York side, it will be prosecuted day and night. There will be three gangs of workmen, each gang to work eight hours, and by this method the company expect to have the tunnel completed within two years.

Work was first begun in November, 1874, but one injunction after another so interfered with the project that the real work did not begin until a month ago, at which time the tunnel company, after paying the the Jersey shore associates and the Delaware, Lackawanna and Western Railroad the amount fixed by the courts for the ground taken, was allowed to proceed.

The entrance to the tunnel on the Jersey side of the river will be from the corner of Jersey avenue and Fifteenth street, to extend thence to the Hudson River, about 3400 feet, thence under the river, curving five degrees northward to the New York bulkhead line, at or near the foot of Morton street, about 5400 feet; thence curving slightly southward about 3000 feet to a point to be selected by the New York Board of Aldermen. The entire length of the tunnel and its approaches will be about 12,000 feet, or about one mile under the river and about three-fourths of a mile on each shore. The tunnel walls will be constructed of the best hard brick and cement, 3 feet in thickness, circular in form, 26 feet in width and 24 feet in height. It will be painted white inside and lighted with gas, with a double track railway of heavy steel rails upon stone ballast 5 feet from the bottom. More than 400 trains will be able to pass through the tunnel daily. Freight and market trains will have transit at night, drawn by powerful engines made expressly for that purpose, to be run by signals, without bells or whistles, consuming their own steam and smoke, or run with compressed air.

The company will convey passengers direct from the West without change of cars, as all trains running into Jersey City will have the right to pass through the tunnel upon the same equitable terms.

The borings made before the work on the tunnel was commenced show that the greatest depth of water is about 62 feet; also that the soil through which the tunnel will pass is for the most part tenacious silt, underlain by hard sand. Near the shore on the New York side there will be encountered a

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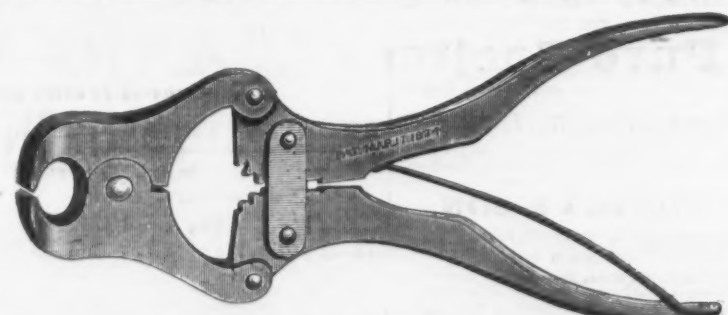
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confident that in three years at the furthest
it will be in operation.

Improved Leveling Instrument.

We illustrate herewith an instrument
which, by reason of its simplicity, conveni-
ence and cheapness, is of special interest to
contractors, builders, masons and all who
have any need for running horizontal lines.
It is also adapted for use in grading, in
squaring foundations and in ditching. It is
far less complicated than the ordinary sur-
veyor's instrument used for the same pur-
pose, and accordingly can be used by less
skillful persons than are required to handle
the latter.

As will be seen by inspection of the cut,
the instrument consists of a circular plate or
table, mounted at convenient height upon
three adjustable legs. This plate or table is
made of iron, which prevents all trouble by
reason of warping. The upper face of the
outer edge of the plate is graduated, as is
partially shown in the cut, the degrees cor-
responding to the various divisions or angles
being plainly marked in figures. The level
and the sights are arranged upon a revol-
ving bar, pivoted in a hole in the center of
the table. A plumb-bob is attached to the
center of the bottom of the plate, all of
which is clearly shown in the engraving.
The sight marked A is of brass, with an ad-
justable ring, in which are set cross wires,



the intersection of which is at an equal dis-
tance from the bottom of the level with the
pin-hole brass sight B.

The method of operating is almost self-
evident. Place the instrument, as shown in
the engraving, with the plumb-bob directly
over the starting-point. By bringing the
line marked on the plate into correspond-
ence with the starting line, as shown in the
cut, the instrument may be revolved so as
to run a line at any required angle. For ex-
ample, by turning it to the point marked 90
degrees, a line will be run at right angles to
the face or starting line, and similar adjust-
ments give other angles.

The glass in the level is adjustable by
means of screws in the bottom operating
against a pivoted cradle, thereby rendering
it in the power of the operator to adjust it
perfectly in case of accident.
This instrument, which is of special utility
to masons, is manufactured for and sold by
Messrs. Bicknell & Comstock, New York.
The price is \$10. We believe it answers a
want long felt for a simple and inexpensive
instrument for the purpose of leveling and
running lines, and we cordially recommend
it to the attention of practical men.

Anthracite Production.

A correspondent of the New York Tribune
makes the following statements respecting
the production of anthracite coal:

The seven anthracite corporations, which
in recent years have been alternately in
combination and in competition, have this
year, to Saturday, October 11, forwarded to
market these quantities, to wit:

Name.	1879.	1878.	Inc.
Phil. and Read's R. R.	6,826,211	4,778,205	2,048,006
Central R. R. of N. J.	3,038,176	1,755,516	1,282,660
Lehigh Valley R. R.	3,616,673	2,800,498	816,175
J. L. & W. R. R.	2,877,243	2,580,465	296,778
Del. & Hud. Canal Co.	2,585,716	2,597,321	29,415
Penn'a Coal Co.	1,087,354	664,930	422,424
Penn'a R. R. Co.	1,400,000	1,200,000	200,000
Total tons.	24,454,384	14,316,915	10,137,469

* Official. † Estimated.

Here we have an increase of 7,134,468
tons, equal to 49.8 per cent. over correspond-
ing time in 1878.

The seven companies had on hand Jan. 1,
1878 685,186
The seven companies had on hand Dec. 31,
1878 504,377

Difference between beginning and end of
year 80,809

For the calendar year 1878 the seven
companies carried to market, jointly, 17,-
306,910 tons; consequently the seven com-
panies to date, October 11, had carried in
ten and a half months, 14,447,735 tons of
coal in excess of the quantity carried in the
twelve months of 1878.

True, the return of activity to the iron
trade and other industries is causing in-
creased consumption of coal the present
year, and will also cause additional con-
sumption next year. But return of pros-
perity cannot be instantaneous to corpora-
tions which until recently sold coal for less
than cost price; and it ought to be un-
derstood, moreover, that for eight months of
this year coal prices at tide-water were
much below the prices in 1877, which
was a year of competition in tonnage and of
deficit in interest accounts.

Enlarged traffic, too, will compel expen-

The Cambria Iron and Steel Works,

Having enjoyed for over TWENTY YEARS the reputation of producing the best quality of

RAILS,

have now an annual capacity of

100,000 Tons of Iron and Steel Rails, Splice Bars, &c.

ADDRESS,

CAMBRIA IRON COMPANY,

No. 218 South 4th Street, Philadelphia.

Or at the Works, JOHNSTOWN, PA.

Or LENOX SMITH, New York Selling Agent, 46 Pine St., N. Y.

THE PHOENIX IRON CO.,

410 Walnut Street, PHILADELPHIA.

Manufacturers of

CURVED, STRAIGHT AND HIPPED

Wrought Iron Roof Trusses, Beams, Girders & Joists,

and all kinds of Iron Framing used in the construction of Iron Roof Buildings.

DECK BEAMS, CHANNEL, ANGLE AND T BARS

curved to template, largely used in the construction of Iron Vessels.

PATENT WROUGHT IRON COLUMNS, WELDLESS EYE BARS,

For Top and Bottom Chords of Bridges.

Railroad Iron, Street Rails, Rail Joints and Wrought Iron Chairs.

REFINED BAR, SHAPING, and every variety of SHAPE IRON made to Order.

Plans and Specifications furnished. Address,

DAVID REEVES, President.

ALAN WOOD & CO.,

MANUFACTURERS OF

Patent Planished, Galvanized, Common, Best Refined, Cleaned and Charcoal Bloom

PLATE & SHEET IRON,

No. 519 Arch St., Philadelphia, Pa.

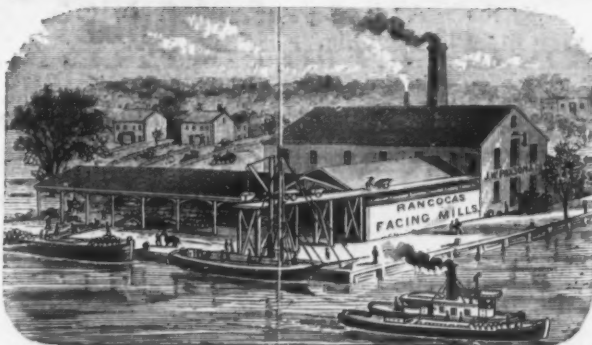
Orders solicited especially for Corrugated, Gasholder, Pan and Elbow, Water Pipe, Smoke Stack,
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Kensington Iron, Steel & Nail Works,
920 North Delaware Ave., - PHILADELPHIA,
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Also, the James Rowland & Co. Kensington Nails, cut from their
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Squares, Flats, Bands and Hoop Iron.
Correspondence with Dealers solicited.

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Manufacturers of
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BAR, ANGLE, TEE AND CHANNEL IRON.
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Manufacturers of

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Established in 1836.

Analyses of Ores, Waters, Metals and Alloys of all kinds. A special department for the

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fitted with all the apparatus and appliances for the rapid and accurate analysis of Iron, Steel, Iron
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Price lists on application.

Chester Iron Company's
BESSEMER ORES.

Blue Ore, Red (Foundry) Ore, and a limited
amount of the celebrated Brotherton (Foundry)
Ore. Prices will be given on application to

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ORES, METALS, &c.
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Merchant,
No. 430 Walnut Street, Philadelphia.

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Sole agents Glasgow Iron Co. and Pine Iron Works
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Iron. Celebrated "Glasgow" and "Pine"
brands for fire boxes and difficult flanging. Tie and
bar iron, Rails and all shapes in iron. Quotations
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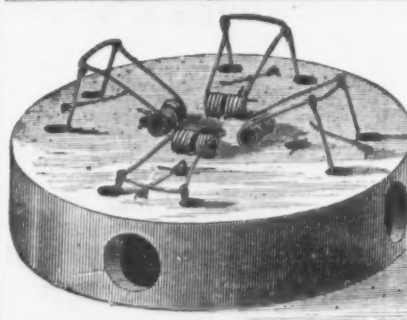


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Quality and efficiency fully guaranteed. Prices as
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ROOFING & SIDING,
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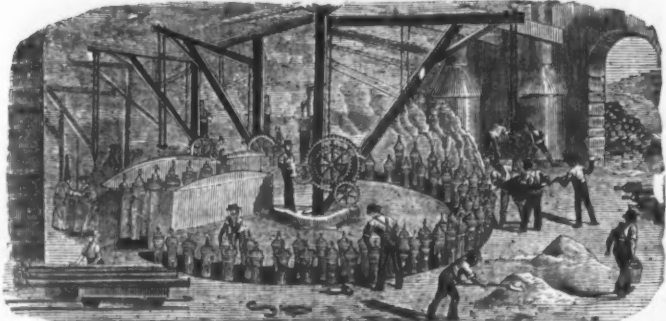
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Of every description, at lowest cash prices. Also,
All Styles Nuts, Washers, Ferrules and Brass Goods Generally.
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The privilege of estimating on special articles solicited.

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General Foundry Work.

CAST IRON PIPES

FOR WATER AND GAS.

ESTABLISHED IN 1845.

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MANUFACTURERS OF ALL KINDS OF
HAMMERED AND ROLLED
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Warranted Equal to any Produced.

BEST REFINED TOOL CAST STEEL
For Edge and Turning Tools, Taps, Dies, Drills, Punches, Shear-Knives,
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For Circular, Mulay, Mill, Gang, Drag, Pit and Cross-Cut Saws.

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For Springs, Billet Web and Hand Saws, Shovels, Cotton Gin Saws,
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For Rollers, Fire-Boxes, Smoke Stacks, Tanks, &c.

All our Plate and Sheet Steel being rolled by a Patented Improvement is unequalled for surface finish and exactness of gauge.

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For Shafting, Spindles, Rollers, &c., &c.

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Cast and German Spring and Plow Steel.

"Iron Center" Cast Plow Steel. Finished Rolling Plow Counters with Patent Screw Hubs attached.
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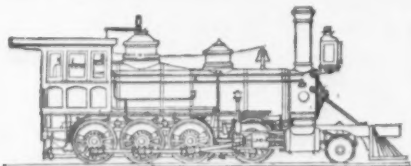
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LIGHT
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CASTINGS

MADE A SPECIALTY BY
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Having extensive machine shop connected with foundry, we are enabled to fit up all kinds of light Hardware or patented articles. Correspondence solicited.

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All shapes, small and large, including

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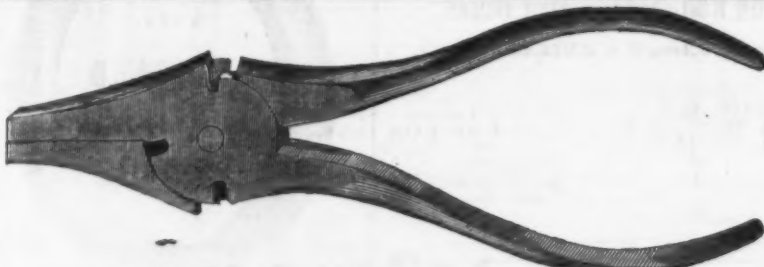
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Castings of Best Quality made to order at short notice.

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Manufacturers of the **BUTTONS PATENT**

"WIRE CUTTER AND PLIER COMBINED."

Specially Adapted for Use on Wire Fence.

Also Manufacturers of

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Price List on application.

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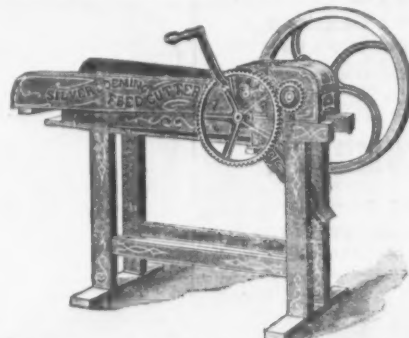
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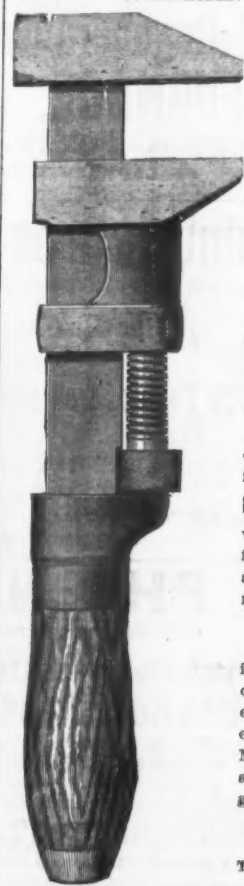
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IT HAS
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GUARANTEED
IN
EVERY RESPECT.

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Owing to the increased demand for these justly Popular Wrenches, we are now manufacturing more than any other establishment in the world.

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Chilled Sand and Patent
Homogeneous Steel

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Nos. 5 6 7 8 9 10
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THE LARGEST PUMP WORKS in the WORLD
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CLOSE-TOP CISTERN PUMP, Fig. 101.



Also, HAND FIRE ENGINES.
Send for Catalogue. Address,
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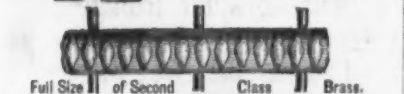
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First and Second-
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Bird Cages.
Wires on both classes
fastened without solder.
The cheapest and most
salable in market.
247 & 249 Pearl St.,
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**WATSON'S NORTH CAROLINA
TURPENTINE TOOLS.**

Made of the best English steel
and guaranteed. Any broken by
fair usage exchanged.
**ARCUS COTTON
BATTING**
for straining resin is the best
and cheapest in use.
Liberal discount.
Send for price list.
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TACKLE BLOCKS.
Rope and Iron Strap of all kinds. Lig-
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WIND-MILL PUMPS**

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Awarded the **GRAND MEDAL** at
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France, 1878, being the highest award on
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sent when requested.

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UNION MANUFACTURING COMPANY,

Manufacturers of all styles Plain and Ornamental Butts,

LOOSE PIN REVERSIBLE,

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Japanned, Figured Enamelled, Nickel Plated

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Cistern, Well and Force Pumps, Yard Drive Well,
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We beg to call the attention of Architects, Builders,
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causing little or no friction, the whole power of the
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Fine Castings a Specialty.

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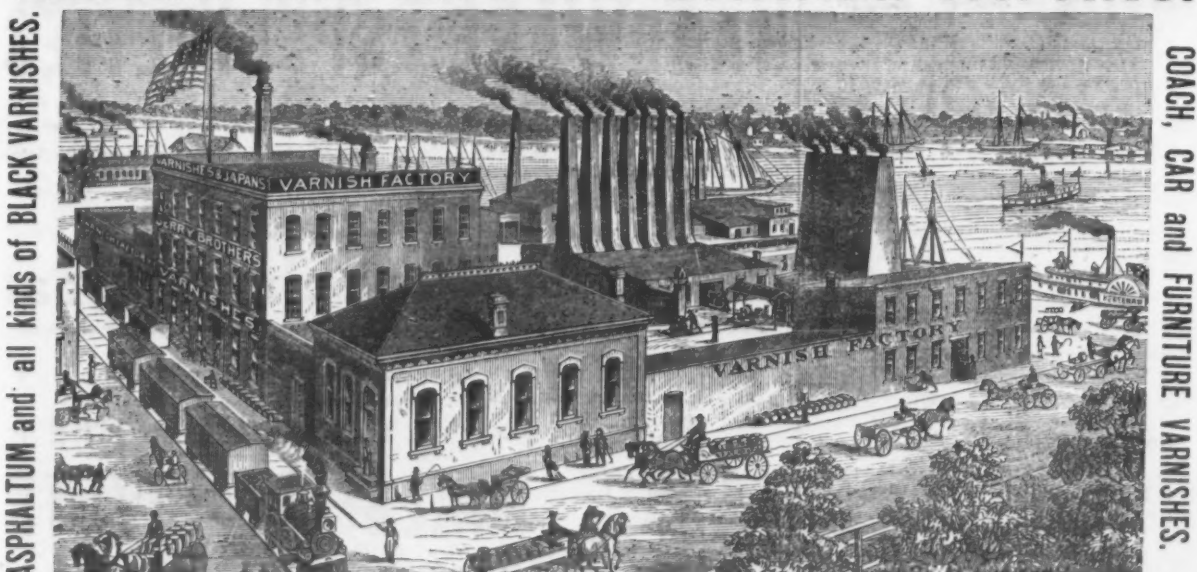


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MANUFACTURED BY
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Particular attention given to orders for EXPORT.

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HOG RINGER
RINGS and HOLDER.
Only double Ringer
invented. The only
Ring that will effec-
tually keep Hogs from
rooting. No sharp
points in the nose.
Ringers, 75c. Rings, 50c. 100. Holders, 75c. Huskers, 15c.
CHAMBERS, BERING & QUINLAN, Exclusive Manufacturers, Decatur, Ill.

ESTABLISHED 1858.

BLACK and BROWN BAKING JAPANS.



BERRY BROTHERS, Varnish Manufacturers, Detroit, Mich.
CHICAGO BRANCH, 236 Lake St.; ST. LOUIS, 303 & 305 North Third St.; CINCINNATI, 72 Main St.; ROCHESTER, 116 Front St.; BALTIMORE, 100
West Lombard St.; PHILADELPHIA, 57 North Front St.; BOSTON, 141 Milk St.; NEW YORK, 279 Broadway.

ditute chargeable to capital account. How
to obtain the millions of dollars needed to
fund floating indebtedness and for under-
ground preparation in the coal region, and
also for additional appurtenances and equip-
ments, is a question which has precedence
of dividends on coal shares.

Coal at Cincinnati.

Through the courtesy of Colonel S. D.
Maxwell, superintendent of the Cincinnati
Chamber of Commerce, we have been fa-
vored with advance sheets of his annual
report on the coal trade of that city. It is a
most interesting and instructive report, and
will prove valuable reading to many of our
patrons. As will be seen from the table ap-
pended, most of the supply of coal for Cin-
cinnati is from Pittsburgh, some 24,000,000
of the 37,000,000 being from that district.
The exceptional condition of the Ohio River,
set forth in the report, has led to light stocks
and high prices, and unless the elements
come to the rescue of the city, fuel will be
exceedingly scarce and high this winter.
In commenting on the market, Colonel Max-
well says:

The business in coal during the past year
has exhibited some marked features. In
January the miners in the whole Pittsburgh
region entered on a strike, which continued
until about the 1st of April, when an adjust-
ment was made by which they were to re-
ceive 2½ cents per bushel instead of 2 cents,
as previously. Soon after this the effects of
low water in the Upper Ohio began to be
felt, and continued with little interruption
until the last of the commercial year. There
were three runs in April. In May there
was none—a circumstance so exceptional
that it is said not to have occurred before in
a period of 25 years, if it ever occurred. June
passed also without the usual rise, so that,
with the exception of the runs in August,
which the rise following the heavy storms
late in July allowed, the summer passed
away with little occurring, so far as Pitts-
burgh is concerned, to relieve the condition
of coal exhaustion to which the city was
drifting. The railroads brought larger
quantities than usual of the Ohio coals and
some Pittsburgh, but with their present fa-
cilities for coal transportation they are not
equal to meeting prospective wants. The
result of this state of things is that, with the
higher prices incident to it, individuals have
drawn on their old stocks of fuel, and the
winter approaches with the cellars measur-
ably empty and a stock in the yards so small
that cold weather would soon exhaust it.
The elements may come to the relief of the
city. If they do not, the rich will procure
their fuel at high prices and the poor will be
left with the most slender resources for the
supply of their winter's fires.

The causes named, operating throughout
the year, have resulted in diminishing re-
ceipts from the Pittsburgh region and in the
tendency of prices in the opposite direction
from the previous year, when the drift,
from almost the commencement of the com-
mercial year, was steadily downward. In
September and October Pittsburgh coal
afloat was quotable at 6 cents, a price with-
out a parallel in Cincinnati since the mid-
summer of 1875 and the years 1860-61 and
1861-62, this coal in the latter years having
sold respectively at 5 and 5½ cents.

There having been no labor troubles in the
Kanawha and Ohio coal regions, the year
has been there an active one, and the aggre-
gate receipts from those localities have in-
creased. Prices for these coals, though
more or less influenced by the Pittsburgh
coal, have been more equitable. The general
average of the entire year, in quotations for
all coals, varies little from 1877-78. Pitts-
burgh afloat averaged 7.58 cents per bushel
in comparison with 7.86 in the previous
year. Ashland was 6 cents afloat compared
with 5.82; Ohio River, 5.52, in comparison
with 5.82; Hocking Valley, at the elevator,
9.1, against 9.3; Raymond City, on arrival,
6.88, compared with 6.5; Muskingum Valley,
on arrival, 8.92, in comparison with 9.17;
Campbell's Creek afloat, 7.16, against 7.1;
and Cannel afloat, 13.23, compared with 13.
Prices have been slightly below the previous
year. The most notable exception being
Pittsburgh, delivered, which was a fraction
above, growing out of light supplies. The
year has been favorable to the railroad coal
interest, the aggregate receipts from the in-
terior Ohio mines having increased.

The receipts have been the smallest in a
period of seven years. The loss, however,
has been almost entirely in Pittsburgh coal,
the receipts of which, in 1878-79, aggre-
gated 20,769,027 bushels, in comparison with
26,743,655, showing a falling off of 5,974,628
bushels, whereas the aggregate receipts ex-
hibit a reduction of 4,681,562 bushels. Of
the whole receipts in the late year there
came by river 31,305,067 bushels, or 91.5
per cent. of the whole, compared with 36,
798,454 bushels, or 94.6 in 1877-78, and by
rail 2,095,600 bushels, or 8.5 per cent. of
the whole, compared with 2,093,775 bushels,
or 5.4 per cent in 1877-78.

The year, taken as a whole, has been more
encouraging to dealers, who, prior to it,
since 1873, had been subjected to all the un-
favorable features incident to large produc-
tion, heavy competition, general decline in
values, dull times and a ceaseless demand
for lower prices. The whole period was
disastrous, so that, if the past summer has
shown more favorable conditions and the
coming year presents an encouraging field
to the coalmen, it will be but partial com-
pensation for the trials of the past. The
shipments of coal from this city to the in-
terior have been the largest in the history of
the city, having aggregated 6,494,600 bushels,
compared with 4,973,300 bushels in 1877-78,
and 5,738,700 in 1876-77.

The business in Anthracite coal, stimu-
lated by low rates, has been largely in-
creased over the preceding year. The re-
ceipts have been larger than ever before,
and the coal has gone into more general
consumption. Prices have been the lowest
ever known here, Wilkesbarre coal having
been delivered on cars, at wholesale, at
times, as low as \$4 per ton, while Lehigh
was relatively as low. This was brought
about by competition between the rail-
roads, all the trunk lines from the East
to this city having been engaged. The aver-
age quotation for Anthracite, delivered, was

\$6.67 per ton, compared with \$7.58 in the
previous year and \$8.33 in 1876-77.

A more than ordinary demand has existed
for crushed gas-house coke, which, for do-
mestic purposes, has passed into more
general use than ever before. Its cleanli-
ness, cheapness and entire adaptation to
either purposes of cooking or heating com-
mend it, and secure for it friends wherever
tried. Our manufacturers, all, of late, being
in full operation, there has been an increased
demand from that quarter, for manufac-
turers' coke. This has been specially felt in
Connellsville coke, for which, in the latter
part of the year, especially, there was a
very active demand.

The receipts of coal of the various kinds,
at this city, during the past year, compared
with the six preceding years, appear in the
following table. This table has been care-
fully made from the reports furnished by
Messrs. A. L. Baker, A. J. Cook and D. B.
Shutterly, coal measurers at this city, and
from the books of the Merchants' Exchange,
private returns, &c.:

Kind.	1878-79.	1877-78.	1876-77.	1875-76.	1874-75.	1873-74.	1872-73.
Pittsburgh (Youghiogheny).....	20,769,027	26,743,655	28,373,572	27,017,592	24,255,002	24,014,681	24,674,373
Ohio River.....	4,068,424	3,382,026	5,144,120	4,000,792	4,777,377	10,968,133	11,079,072
Kanawha.....	6,134,099	6,386,643	3,693,883	6,004,773	4,476,619		
Muskingum Valley.....	85,500	118,453	179,940	177,720	318,000		
Hocking Valley.....	85,500	118,453	179,940	177,720	318,000		
Cannel.....	333,849	1,029,775	1,218,918	1,772,320	6,650,000		
Anthracite.....	768,720	398,768	393,472	409,338	565,339	718,000	1,162,092
Other receipts.....	1,537,320	436,390	374,135	288,578	248,720	118,000	75,000
Total.....	34,210,667	38,092,209	39,622,634	40,183,317	35,900,300	35,934,834	37,974,497

Extraordinary Record of a Charcoal Blast Furnace.

We are in receipt of a letter from Mr. E.
S. Noble, of the Elk Rapids Iron Co., Elk
Rapids, Mich., giving in a connected and
condensed form a statement of the extra-
ordinary work done by the furnace of this
company. This furnace has demonstrated
that a large charcoal stack can be operated
successfully. In 1874, when it was built, it
was the prevalent opinion among charcoal
iron men that a 12-foot charcoal furnace
could not be run economically and success-
fully, and this company met with but little
or no encouragement. The first working of
the furnace confirmed the opinion of the ob-
jectors. A large furnace of any kind is
more difficult to manage than a small one.
At first the furnace did not succeed in mak-
ing any more pig metal than the average of
the 9-foot furnace; but by careful and in-
telligent study and management, the output
has been increased from 2½ tons daily
average to over 39 tons. The present blast,
of which the record is given below, is re-
garded by the owners as furnishing the best
record of any charcoal furnace in the world.
It is still in blast, and has made over 20,000
tons of pig metal on one hearth. The next
highest work on one hearth of which they
have knowledge is 12,000 tons. Atna 9-
inch brick are used for hearth, boshes and
lining. The characteristics of the furnace
and the output for a month are as follows:

	Ft. In.
Height of stack.....	47 0
Diameter of boshes.....	12 0
Height of hearth.....	5 6
Diameter at bottom of hearth.....	4 9
Number of tuyeres, 4; diameter of same.....	60 x 72
Blowing cylinder of engine, inches.....	60 x 72
Hot blast, 3-section Ford, 1 Player.	

Pig metal made for week ending Aug. 10, 1879.....	T. Lbs.
Pig metal made for week ending Sept. 6, 1879.....	310 1,308
Pig metal made for week ending Sept. 13, 1879.....	313 655
Pig metal made for week ending Sept. 20, 1879.....	335 1,445
Pig metal made for week ending Sept. 27, 1879.....	335 2,080
Total product for 28 days.....	1,301 668
Average per day.....	46 12 0
Largest day's work.....	58 1,085
Total pig made for whole time in blast (30 days) present hearth (Oct. 24, 1879).....	22,051 910
Average per day, full time.....	39 713
Note.—The ton is 2,260 lbs.	

There are 25 charcoal kilns of 100 cords
capacity each. The coal is taken direct
from the kiln to the furnace. The wood is
beech and maple.
Pig metal made for week ending Aug. 10, 1879.....
Pig metal made for week ending Sept. 6, 1879.....
Pig metal made for week ending Sept. 13, 1879.....
Pig metal made for week ending Sept. 20, 1879.....
Pig metal made for week ending Sept. 27, 1879.....
Total product for 28 days.....
Average per day.....
Largest day's work.....
Total pig made for whole time in blast (30 days) present hearth (Oct. 24, 1879).....
Average per day, full time.....
Note.—The ton is 2,260 lbs.

In the letter before us there is no state-
ment as to yield of ore, fuel consumed, &c.
In March, 1877, however, at a time when
but 32 tons per day average was being
made, we have on file the following record:
Yield of ore, per cent..... 62.48
Limestone per ton of pig, lbs..... 150.16
Fuel per ton of pig, bushels..... 105.49
We presume that this record of fuel has
been surpassed, but even at these figures
there is no cause for complaint.

The Western Iron Boat-building Company,
St. Louis, have completed one of the two
iron snag-pullers for service on the Missis-
sippi River, and one of the tugboats is now
receiving its upper works; the other will be
completed soon.

A. FIELD & SONS,

TAUNTON, MASS.,

MANUFACTURERS OF

AMERICAN AND FRENCH WIRE NAILS, TACKS, SHOE NAILS, And Every Variety of Small Nails.

Offices & Factories at Taunton, Mass.

Warehouse at 78 Chambers St., New York,

where may be found a full assortment of Tacks, Brads, Wire Nails, &c., for the accommodation of the New York Wholesale and Jobbing Trade.

Any variations from the regular size or shape of the above-named goods made from sample to order.

A SILVER MEDAL has been awarded above goods at the Paris Exposition, being the only medal awarded any American manufacturer of Tacks and Wire Nails.

Hoisting Machinery

MANUFACTURED BY

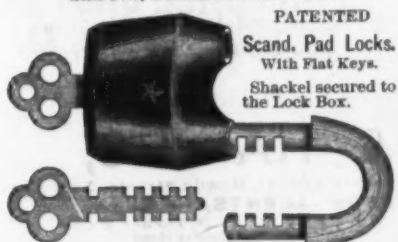
CRANE BROTHERS MFG. CO.,

Chicago.

STAR LOCK WORKS.

ESTABLISHED 1836.

Trunk Locks, Door Springs,
Pad Locks, Trunk Stays,
Dead Latches, Keys, &c., &c.
110 South 8th St., and Sanson, bet. 8th
and 9th, PHILADELPHIA.

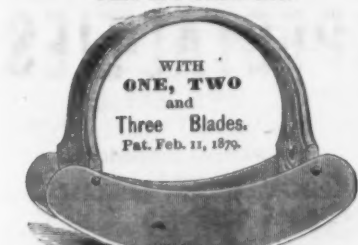


HILLEBRAND & WOLF.



A. A. WEEKS,
Manufacturer of
Hardware Specialties,
82 John St., New York.

REDUCTION IN PRICE LIST
FOR THE FALL TRADE.
AMERICAN MINING KNIFE,
BEST AND CHEAPEST.



Catalogue of Hardware Novelties upon applica-
tion.
PHILADELPHIA NOVELTY MFG. CO.,
821 Cherry Street, Philadelphia, Pa.

CLOTHES WRINGERS.



T. J. ALEXANDER, Manager,
BOSTON, MASS.

THE ANSONIA CORRUGATED STOVE PLATFORM, With Patented O. G. Border.

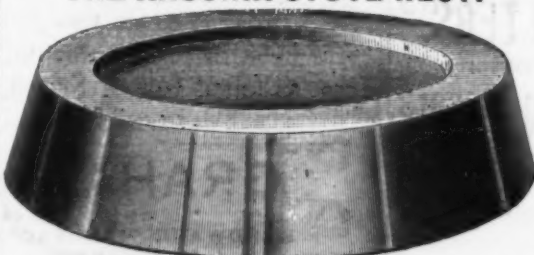
ROUND ZINC.

27, 30, 32, 34, 36 inch.



Cut Showing Round Platform.

THE ANSONIA STOVE REST.



This Cut is the Actual Size of 2-inch.

Manufactured of heavy metal, requiring
no nailing or lining, the edge retaining its
form. Superior pattern, finish and quality.
Price as low as any.

Send for List and Discount.

Packed 12 in each case.

STOVE RESTS are designed to
place under the feet of Stoves
and Ranges, for the purpose of
raising them from the floor or
platform. They are about 1/2-
inch thick, covered with sheet
metal in zinc, brass and nickel
plate. Highly polished and fin-
ished. Packed one set of 4 pieces
in each paper box, and 36 sets in
each case. Sizes (inside of circle
on top)

2, 2 1/2, 2 3/4, 3 1/2 inch.

Send for full Description
and Prices.

ANSONIA BRASS AND COPPER CO., 19 Cliff St., New York.

NEW YORK BELTING & PACKING COMPY

The Oldest and Largest Manufacturers in the United States

Vulcanized Rubber Fabrics FOR MECHANICAL PURPOSES.

WAREHOUSE, 37 and 38 Park Row, New York.



Emery Wheel.

ORIGINAL

Solid Vulcanite EMERY WHEELS

LARGE WHEELS MADE ON CAST-IRON CENTER IF DESIRED.
The properties of these Wheels are such that they can be used with great advantage and
economy for cutting, grinding, and finishing Wrought and Cast Iron, Chilled Iron, Hardened
Steel, Slate, Marble, Glass, etc. These Wheels are extensively used by manufacturers of Hard-
ware, Cutlery, Edge Tools, Plows, Saws, Stoves, Fire Arms, Wagon Springs, Axles, Skates, Agri-
cultural Implements, and small Machinery of almost every description.

PATENT ELASTIC

Rubber Back Square Packing

BEST IN THE WORLD.

For Packing the Piston Rods & Valve Stems of Steam Engines & Pumps.

B represents that part of the packing which, when in use, is in contact with the Piston rod.
A the elastic back, which keeps the part B against the rod with sufficient pressure to be steam tight,
and yet creates but little friction.

This Packing is made in lengths of about 20 feet, and of all sizes from 1/4 to 3 inches square.
JOHN H. CHEEVER, NEW YORK BELTING & PACKING CO.,
Treasurer. 37 and 38 Park Row, New York.

RICHARD DUDGEON,

No. 24 Columbia Street, New York,

Maker and Patentee of the Improved

Hydraulic Jacks

AND
Punches.



Roller Tube Expanders and Direct Acting Steam Hammers.

Communications by letter will receive prompt attention.

Jacks for pressing on Car Wheels or Crank Pins made to order.

EVERY

POTNAM NAIL

is drawn down to a point from the rod, thus:

It is the only Hot Forged and Hammer Pointed Horse Shoe Nail, made by ma-
chinery, in the World.

Some other manufacturers claim to make a hot forged Nail, but you will observe on all such a
sheared edge near the point.

P. O. Address, Neponset, Mass., U. S. A.

THE POTNAM NAIL CO., Boston.

LABOR AND WAGES.

Some time since the molders in the mal-
leable iron works of the Crawford Mfg. Co.,
Allegheny, Pa., went out on a strike for an
advance of 10 per cent. in their wages, and
presented to the proprietors a price list
which they asked should govern the wages
of all the molders. This included the skilled
and unskilled, the careful and careless. The
proprietors acceded to the demands of the
molders, but insisted on having in return
good castings. They claim that inasmuch
as they pay the molders their price for 100
castings, it is but just they should receive a
fair percentage of perfect castings. After
a short trial this arrangement did not suit
the molders, who demanded pay for each
mold, whether the casting be good or bad.
This the proprietors refused, and the conse-
quence was the molders went out again.
From 100 molds a careful molder will turn
out 93 good castings, while from the same
number of molds a careless molder will turn
out only from 75 to 80. The firm have been
compelled to surrender all orders for cast-
ings on hand, and all the work which, but
for the molders, would have remained with
the above firm, has gone to Buffalo, Cleve-
land, Springfield, and Dayton, Ohio. Since
the foregoing was written, it has been
learned that the old molders refuse to go to
work unless 12 new men brought from
Reading are discharged. The firm refuses
to discharge them, and thus matters are at
present.

There has been some trouble between the
helpers and the puddlers in the Lochiel Iron
Works, Harrisburg, Pa. The puddlers pay
the helpers one-third of what they receive
for puddling. The helpers thought one-third
was not enough, and demanded more. The
trouble has been arranged, however, and
matters between them are now as they
were before the demand of the helpers was
made.

Notice was given by the miners and
drawers in the Connellsville coke regions
that if the new scale of prices was not com-
plied with a strike would be inaugurated
Saturday the 1st. On Friday, the 31st ult., a
mass meeting was held at Everson, at the
conclusion of which the operators were in-
formed that a strike would be declared. As
soon as this ultimatum was reached a num-
ber of firms complied with the demands of
the men, while the miners at Sherrick and a
few other points along the Mount Pleasant
branch of the Baltimore and Ohio Railroad
went out Saturday morning. Advice from
Everson states that all the works in the
region have conceded to the demand. It is
said that nearly four-fifths of the coke pro-
duct of the region for the ensuing year is
sold ahead at advanced prices.

The roughers and catchers of the National
Tube Works Rolling Mill, Pittsburgh, have
been granted an advance of 10 cents per
ton.

The nail-plate rollers of the different nail
mills at Wheeling and neighborhood, have
asked an advance of wages of 5 cents above
the prices paid at Pittsburgh. They are
getting 45 cents per ton, and ask an advance
of 17 1/2 cents, or 62 1/2 cents per ton. It is
stated that the advance has been conceded
and the scale signed.

The price of boiling in the rolling mills at
Harrisburg was advanced from \$4 to \$4.50
the third of this month.

Some of the striking molders at Craw-
ford's Malleable Iron Works, at Pittsburgh,
still refuse to return to work until certain
molders from the East, who have been given
situations, are discharged.

Wages of mining have been advanced at
Leetonia, Ohio, from 60 to 70 cents per ton.
Three cents per bushel is being paid for
mining at Trenton, Illinois.

The puddlers in the "Nonesuch" Rolling
Mill, at Norristown, Pa., have been out on
a strike for two weeks for an advance in
wages. They will probably resume this week
at \$4 per ton.

The managers of the Acme Glass Works,
at Steubenville, Ohio, have discharged their
employees on account of a disagreement
about wages.

The Mercer Mining and Manufacturing
Company, on November 1, made an advance
of 10 cents per ton for mining and 10 cents
per day in the wages of drivers and laborers
at the Pardoe mines. The output of the
mines is about 200 tons of lump coal per
day.—Mercer Advance-Argus.

Railroad contractors say that they now
have but very few, if any, applications for
work, while a few months ago they were be-
sieged by applicants. Since the improve-
ment in the times every industrious man
can obtain employment. Some employers
say they have great difficulty in securing as
many men as they have need for.

The tack factory of Chess, Smyth & Co.,
Pittsburgh, has not been idle since the
strike, as has been reported, but has been
partially so. Last week the firm engaged
all the tackers wanted.

The Mineral Wealth of Utah.

Prof. J. S. Newberry, of the Columbia
School of Mines, has given the Salt Lake
Tribune the following account of his obser-
vations during a recent trip through the
chief mining camps of Utah:

Parley's Park contains the great Ontario
silver mine, and a number of others in pro-
cess of development, which have not yet
reached the stage of production. The gen-
eral impression produced by my visit was
highly favorable. The mines there are
located on true fissure veins, of which there
are several systems, and give promise of
greater regularity and permanence than
those of most other mining districts. The
Ontario is a fissure vein, in quartzite, of
good size and carrying ore of good high
grade. The mine has been worked with
great skill from the first, and may now be
said to be a model in the system under
which it has been worked, as well as in the
regularity and richness of the deposit. All
the improvements are of the most substan-
tial and permanent character; its managers
are evidently men of superior ability, and
altogether it stands as one of the most inter-
esting and satisfactory mines on the Con-
tinent. The workings of the Ontario have
as yet reached only 500 feet, although the
vein has been opened to a depth of 600 feet.
On the lowest level the vein shows even
better than at the surface, and everything

indicates that it will continue to be as pro-
ductive to the depth of 2500 or 3000 feet as
it has been to 500. The Ontario veins runs
nearly east and west, and development
work is progressing rapidly on several
of the claims on the eastern and west-
ern. Little can yet be said of the fu-
ture of the mines now being opened
on the Ontario vein, as, although the
ledge may be distinctly traced, its rich-
ness has not yet been demonstrated. This
is in a fair way to be done, however, as
the work of development is being vigorously
prosecuted in the Empire, on the west, and
in the Parley's Park, Lady of the Lake and
McHenry tunnel on the east. The next
claim west of the Ontario—the Last Chance
—has been pretty well opened by the levels
of the Ontario, which run into it. These
show fine bodies of ore, and indicate that it
will be no less productive mining ground
than the Ontario. Another group of veins
in the vicinity of the Ontario has a direction
oblique to the vein of that mine, running
northwest and southeast, and on these the
Utah and White Pine mines are being
opened, with good indications. Still another
series, running nearly north and south, is
represented by the Jones or Bonanza mine,
opened 200 feet, showing persistent, regular
deposits, less in dimensions than those of
the Ontario, but carrying ore of great rich-
ness. On the whole, the promise of the Park
district is exceedingly flattering. It is well
supplied with wood and water, and lies in
such proximity to the coal mines of Coal-
ville that it can always be sure of an abun-
dance of cheap fuel.

Little Cottonwood, which includes the
famous Emma, Flagstaff and other noted
mines, was the next district visited by me.
The nature of the mineral deposits here is
totally different from those in Parley's Park.
In the Park they are true fissure veins,
which carry comparatively little galena,
and the ore is to be treated by milling rather
than by smelting. In the Cottonwood, on
the contrary, the ore occurs in chambers in
limestone; was originally mainly galena,
but is now changed to carbonate of lead.
The nature of these mineral deposits is simi-
lar in all respects to those of Eureka, Ne-
vada. The chambers and galleries have
been dissolved out of the limestone by sur-
face water, carrying carbonic acid, and
have been, in subsequent upheavals, opened
by fissures, through which mineral solutions
have flowed, more or less perfectly filling
these cavities with ore deposits from such
solutions. Very naturally, these deposits
lack the regularity and reliability of fissure
veins, and they have in many cases, as the
Emma, been completely worked out, so far
as known; and yet the magnitude of some
of these ore bodies and the millions of dollars
of bullion taken from them, prove that
class of deposits may be a source of great
wealth. The great ore chambers, formerly
discovered here, have been for the most
part emptied of their contents. It is by no
means certain, however, nor even probable
that all the valuable ore deposits are yet
known, and there is encouragement for
much and long-continued exploration in the
extensive belt of country which is known to
be metalliferous.

In Bingham Cañon, the general forma-
tion is quite different from that on the other
side of the valley. The hills are made up of
heavy beds of quartzite, and at various
points by massive dikes of eruptive rock,
generally, though incorrectly, called por-
phyry. The principal mining belt is very
broad, and crosses the mountains in a north-
east and southwest direction. There are
here a considerable number of veins, and
these vary somewhat in character among
themselves. They are, however, fissure
veins, sometimes crossing and sometimes
conforming somewhat to the bedding of the
country rock. They are of large dimensions,
and variable in their thickness at different
places. On the whole, the deposits are con-
tinuous, and will be permanent, and promise
long life to the mining activity of the dis-
trict. The Old Telegraph, the Stewart, the
Spanish and the Jordan illustrate very well
the general character of the veins in this
vicinity. They lie in the same belt and have
many characteristics in common. The ore
matter seems originally to have been de-
posited in the form of galena and iron
pyrites, the former carrying silver, and
the latter gold. As a result of surface
decomposition, the galena has been changed
to carbonate, and the pyrites oxidized,
forming brown hematite, which still re-
tains the gold of the pyrites. In the
Stewart, Spanish and Jordan, the gold-
bearing portion of the ore is very strongly
marked, and here the vein stone was
highly siliceous, leaving a large quantity
of silica in the decomposed ore. The silver
lead ores of Bingham have long been known
and extensively worked. The utilization of
the gold ores is the result of very recent dis-
covery of their value; but these now promise
to contribute to the mine owners a larger
measure of wealth than they have derived
from the smelting ores. It is even doubtful
whether they will not furnish as large a
quantity of gold for some years to come as
the famous gold mines of the Black Hills.
The gold ores of the Bingham mines are low
grade, ranging from \$6 to \$30 per ton; but
they are exceedingly soft, and can be mined
and milled more cheaply than any gold ores
known. The quantity of material to be
treated is enormous. In one of the Bingham
mines, the mass of visible gold-bearing ore
opened by the drifts, which were made for
the purpose of reaching the lead ore, is at
least 30 feet thick by 500 feet in length, and
rises 350 feet above the water level. This
mass, as tested by careful sampling and as-
say, carries an average of \$13.50 in gold,
and \$3 to \$5 in silver. As it can be mined
for less than half a dollar per ton, and
milled, where water is obtainable, for an
equal sum, it will be seen that the amount
of gold available in these deposits is really
enormous. It will, probably, be necessary
to bring a large part of the gold ore down to
the valley for treatment; but, in that event,
the expenses will be such as to leave a large
margin of profit to the mine owners. Hence,
it will not be surprising, as has been sug-
gested, the gold production of Bingham
should overshadow that of silver. It should
be said, however, that below the water level
the gold will probably be found in unchanged
pyrites, and it is doubtful whether this can
be profitably worked.

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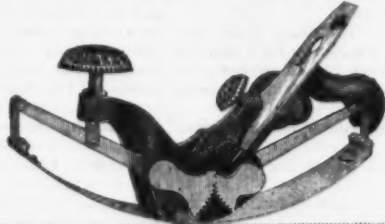
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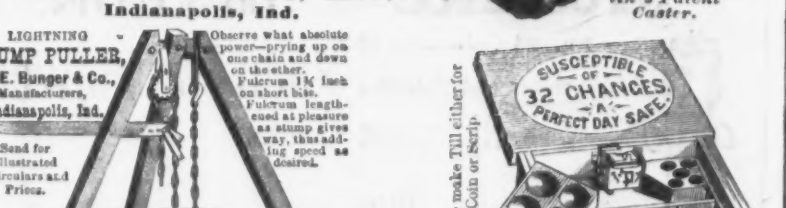
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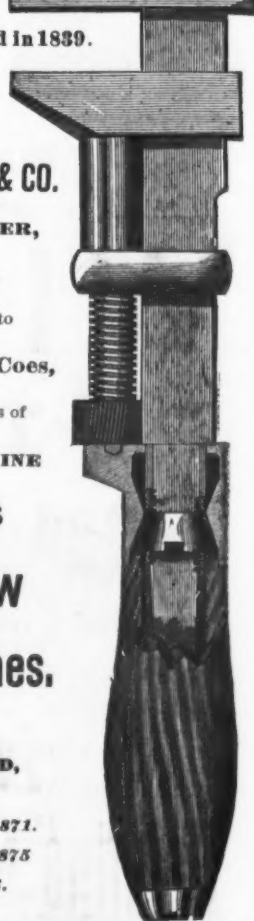
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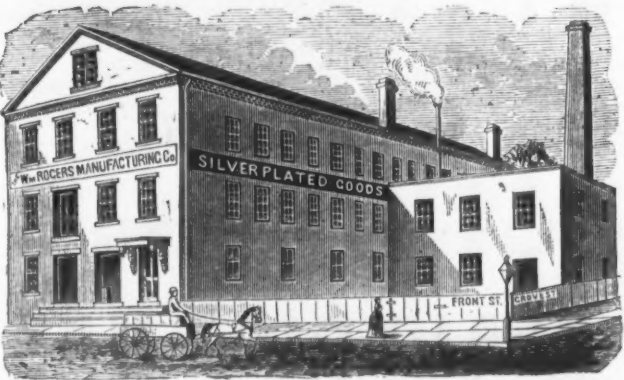
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Outfits complete, with Dynamo-Electric Machine Tanks, Anodes, Solution, &c., &c., \$250.

We beg to refer to the following Stove Manufacturers among 500 other houses using the Weston Machine: Richardson & Boynton, S. S. Jewett & Co., Fuller, Warren & Co., Perry & Co., Detroit Stove Works, Michigan Stove Co., Co-operative Stove Co., E. & C. Gurney, Hamilton & Toronto, and many others.

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We call attention to infringements of the Weston Machine, in which Automatic Switches are used to prevent change of current. The Weston Co. are owners by grant or purchase of all forms of Automatic Switches for Plating Machines. The adoption of these machines will certainly lead to great loss to parties purchasing or using them.

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The Coal Arbitration at Pittsburgh.

As announced in our columns last week, the Coal Arbitration Board at Pittsburgh, after a protracted session, agreed upon 3½ cents per bushel for mining coal for the month of November. As the action of this board is of considerable interest to other trades, we give an account of the organization, and a synopsis of the arguments that led to this result. The board was organized only for the railroad mines, the river being so low that it was not thought best at present to attempt to organize for the river mines. The operators elected five members of the board at a meeting called for the purpose, and the miners five at a similar meeting. At the operators' meeting the following agreement was signed:

"We, the undersigned, hereby unite ourselves with the Board of Arbitration and Conciliation for the coal mines of Western Pennsylvania, and agree to be bound by the rules for the formation and government of the same, October 24, 1879." The members of the board representing the operators were clothed with full power to act, and were untrammelled with instructions.

The miners' convention passed a resolution to the effect that the miners would stand by the decision of the Board of Arbitration, or the referee, if it should be necessary to refer questions at issue for his final decision, until such times as the decision, if opposed to the interests of the miners, might be overturned legally, but it was understood that instructions were given the members not to consent to a lower scale than 3½ cents at the present time.

At the first meeting of the board, on motion of John Beveridge (miner), W. A. McIntosh (operator) was chosen president, and on motion of S. McCrickart (operator), John Beveridge (miner) was chosen vice president. Alex. Patterson (operator) and F. Gates (miner) were chosen members of the Conference Committee. The rules prescribed that the members of the Conference Committee be elected in separate meetings of miners and operators, but such was the good feeling that it was decided to elect by the full board. A Committee on Business was appointed, and presented the following:

Resolved, That the scale of prices for digging coal shall be based upon the price of boiling in the iron mills at Pittsburgh.

This called at once for a decided difference of opinion. On the part of the miners it was argued that something stable was wanted, and this was found in the price of boiling; that the largest consumption of coal was in connection with iron making, and it was fair to presume that when iron went up coal went up. The operators argued that, allowing all this to be true, it was all in favor of basing the price on the card for iron, and not on the boilers' scale, which is based on iron. They argued further that a fixed price for a certain time was better than a scale; that a large part of the coal—as much as nine-tenths of that mined by some operators—did not go into iron-making; that it was not fair to base the advance or decline of running on a product with the product into which their coal entered, and that a price based on the selling price of coal was the best. It was also held that the boilers' scale was not a fair one; that it was not so regarded by the iron mills, and that there was a deferred fight concerning it that was bound to come. The president, however, held that the scope of the resolution did not fix the price; it only provided the basis, and if it was adopted then the question would be, When boiling is a certain price, what should the price of mining be? While a large amount of the coal mined is sent out of Pittsburgh it is used in iron making, and the price of iron in Pittsburgh rules the price elsewhere. The resolution was finally adopted by a unanimous vote, though the operators were not satisfied, and only agreed to it as a concession to the miners.

Under this resolution the following scales were presented:

NO. 1.—MINERS' FIRST SCALE.		
When boiling is ..	Per ton.	Per 100 bushels.
5.00 ..	3.50	3.50
5.10 ..	3.60	3.60
5.20 ..	3.70	3.70
5.30 ..	3.80	3.80
5.40 ..	3.90	3.90
5.50 ..	4.00	4.00
5.60 ..	4.10	4.10
5.70 ..	4.20	4.20
5.80 ..	4.30	4.30
5.90 ..	4.40	4.40
6.00 ..	4.50	4.50
6.10 ..	4.60	4.60
6.20 ..	4.70	4.70
6.30 ..	4.80	4.80
6.40 ..	4.90	4.90
6.50 ..	5.00	5.00
6.60 ..	5.10	5.10
6.70 ..	5.20	5.20

NO. 2.—MINERS' SECOND SCALE.		
When boiling is ..	Per ton.	Per 100 bushels.
5.00 ..	3.00	3.00
5.10 ..	3.10	3.10
5.20 ..	3.20	3.20
5.30 ..	3.30	3.30
5.40 ..	3.40	3.40
5.50 ..	3.50	3.50
5.60 ..	3.60	3.60
5.70 ..	3.70	3.70
5.80 ..	3.80	3.80
5.90 ..	3.90	3.90
6.00 ..	4.00	4.00
6.10 ..	4.10	4.10
6.20 ..	4.20	4.20
6.30 ..	4.30	4.30
6.40 ..	4.40	4.40
6.50 ..	4.50	4.50
6.60 ..	4.60	4.60
6.70 ..	4.70	4.70
6.80 ..	4.80	4.80
6.90 ..	4.90	4.90
7.00 ..	5.00	5.00

NO. 3.—OPERATORS' SCALE.		
When boiling is ..	Per ton.	Per 100 bushels.
5.00 ..	2.50	2.50
5.10 ..	2.60	2.60
5.20 ..	2.70	2.70
5.30 ..	2.80	2.80
5.40 ..	2.90	2.90
5.50 ..	3.00	3.00
5.60 ..	3.10	3.10
5.70 ..	3.20	3.20
5.80 ..	3.30	3.30
5.90 ..	3.40	3.40
6.00 ..	3.50	3.50
6.10 ..	3.60	3.60
6.20 ..	3.70	3.70
6.30 ..	3.80	3.80
6.40 ..	3.90	3.90
6.50 ..	4.00	4.00
6.60 ..	4.10	4.10
6.70 ..	4.20	4.20
6.80 ..	4.30	4.30
6.90 ..	4.40	4.40
7.00 ..	4.50	4.50

The scale numbered "1" was first presented and discussed. The operators termed it ridiculous, and intimated that a referee would be necessary. The miners asserted that coal was bringing 9 cents in the city, and at that price 4 cents could be afforded. The operators denied that such a selling price was the rule; it may have been that small retail lots might have been sold at some of the yards at 9 cents; but if such was the case, it was exceptional. The operators offered to show their books, and the conference adjourned to accept the invitation, and

the examination proved all that the operators claimed. One of the miners' representatives went so far as to say that their arguments were all taken from there. The scale No. 1 was withdrawn and No. 2 substituted, while the operators submitted No. 3. These were both rejected, and a dead lock seemed imminent. After considerable discussion the following resolutions were adopted:

Resolved, 1. That the price of digging coal shall be 3½ cents per bushel for the month of November, 1879.

Resolved, 2. That in making this advance of one-half cent per bushel by said Board of Arbitration, the miners and their secretary agree to make the said price for mining coal universal; that is to say, on the Pan-Handle and Chartiers Branch, Montour Run, Saw-Mill Run, Castle Shannon and Keeling Works, and country pits around Saw-Mill Run; all shippers by rail on P. V. & C. Railway, Connellsville, Pennsylvania Central and Allegheny Valley Railways.

Resolved, 3. That the acceptance by the Board of this rate of mining to cover a contingency shall in no wise be regarded as an acceptance of this rate as a basis when the price of boiling is \$5.50, nor shall its acceptance at this time be used as an argument for or against such a basis.

The address of the miners to their constituents, which we give below, is worthy of careful reading, as it shows at least the spirit that animates these men, and it certainly is a remarkable paper.

To the Railroad Miners.—Your Committee of Arbitrators, in examining the books of the operators, copied the following items:

On Oct. 25, 1879, a coal company sold to a steel firm 600 bushels of slack in four cars at Union depot, for \$11; the freight on each car from mines to depot was \$1.50, making for four cars, \$6. For use of car, they estimate \$1 each, making in all \$4 for use of cars, added to \$6 freight, making \$10 expenses, which being subtracted from \$11 leaves \$1 profit on 600 bushels of slack.

I will give you the facts as far as I am able, and you may draw your own conclusions:

The following is from the Western trade, Oct. 23, 1879: 14½ tons of clean coal, sold to a Western firm, at 90 cents per ton on cars at mines.

14½ tons at \$1.25 per ton on cars at mines.	
28½ " " " " " "	.80
28½ " " " " " "	.90
28½ " " " " " "	1.25

The above prices are paid for coal on the car. The expenses of mining, 78 cents per ton, and bringing the coal to the railroad car, must be deducted.

The following will show the net coal sold: 600 bushels at 3½ cents, at Union depot, \$21; from which take \$6.25 for freight and use of two cars, leaving \$14.75 profit on net coal, without counting any royalty. Railroad corporations are bleeding both the miner and the operator, and until these monopolies are either crushed or compelled to charge only reasonable rates, there will be little profit to either party.

Here is the latest item possible on last Saturday: 1165 bushels clean coal at 6 cents, at Union depot, \$69.90. Freight, 22 cents per ton. One thousand one hundred and sixty-five bushels is equal to 44½ tons, which being multiplied by 22 cents, gives \$9.79 freight, which, subtracted \$69.90, will leave \$60.11, not counting anything for use of cars and for running expenses.

Same date: 15,000 bushels net coal, at Union depot, at 3½ cents, \$52.50. Freight on five cars, at \$3.28 per car, is \$16.40, leaving a profit of \$32.10.

All the above items are taken from the books of coal operators, who are, of course, sellers of coal. To make matters certain and satisfactory, we visited the offices of a very responsible and extensive iron and steel manufacturer, and were kindly accommodated and shown everything we needed. The following are the results:

Aug. 30, 1879, mined, hauled and delivered at mill, 15,088 bushels of clean coal, at 4½ cents, \$716.65. Net coal, 3037 bushels, at 4 cents, \$121.48. Slack, 13,900 bushels, at 2½ cents, \$347.50.

The above figures include all expenses, from the coal in the vein to the mill yard. The coal operator was not paid cash, but in a four months note, which makes a difference of about 6 per cent. against the seller. Coal was sold in September at same figures. Bills for October were not in on Saturday, November 1st, but I presume the figures are a little higher. The above items will give you an idea of what our operators receive for their coal, and will give you also an idea of the arbitrary rates charged by railroads for transportation. To give you a better idea, a coal operator in the fourth pool can transport and sell his coal cheaper at a mill in Pittsburgh than an operator at Mansfield can; that is, when mining is the same on both river and railroads.

So long as the Monongahela is dry, and no coal can come down the river, the railroad miners digging coal directly for the Pittsburgh manufacturing and domestic trade, could exact almost any price for their digging, but when the rains and floods come, bearing into market any amount of 2½ and 2½-cent coal from the river, I fear that it will interfere with our prospects, and perhaps burst the "boom" of the railroad miners. In other words, 2½-cent from the river can undersell 3-cent or 3½-cent coal from the railroad. Hence, the whole matter resolves itself into one question, the question of uniformity of price in the bituminous regions, which I have incessantly urged, do now urge, and always will urge upon all. The sad spectacle of the river and railroad miners cutting each other is again seen, and will be more clearly realized when Providence sends the rains and the rise in the rivers. All miners digging in the same vein should have the same price, but until the river swells the railroad men should get as much as they can. The poor, those living in rickety cold houses, are forced to pay 9 cents per bushel, whereas the same kind of coal is delivered for 5 cents at the mills and factories of the wealthy. Perhaps the reason of this unjust discrimination is, that the retailers have combined to raise the price of coal, whereas the coal operators have not. We found out also that there is a great deal of cutting being done among the operators. In fact, they are continually at a business war. One

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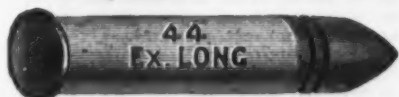
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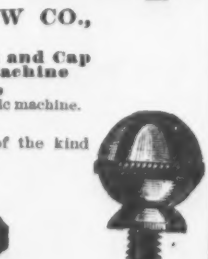
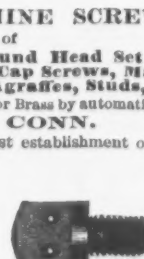
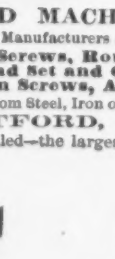
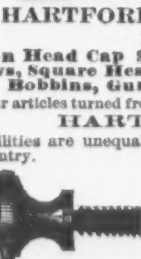
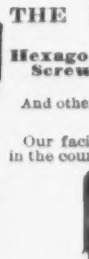
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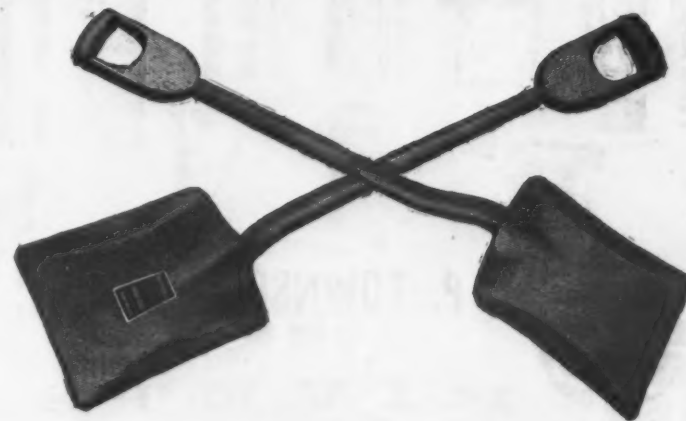
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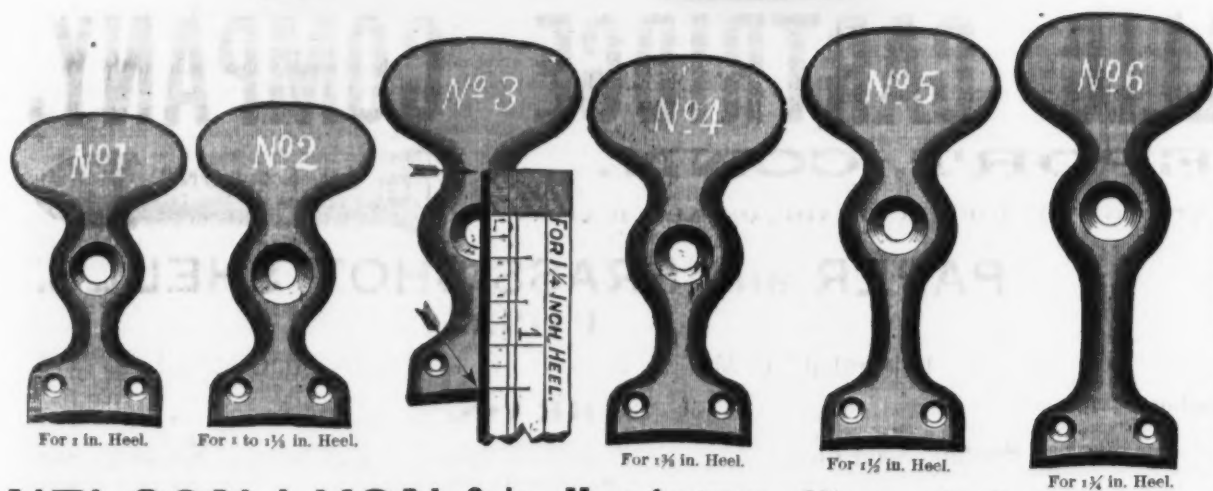
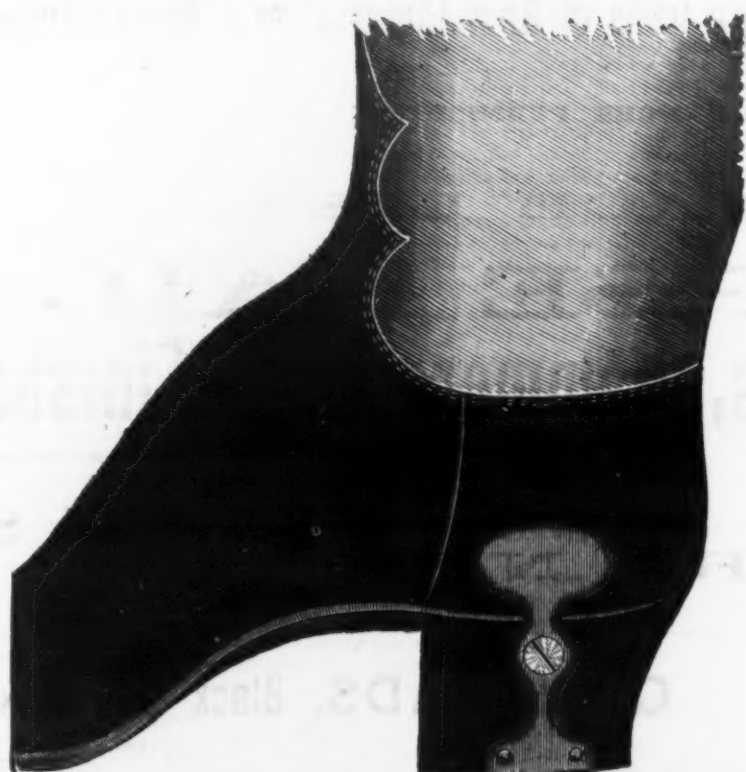
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operator does not know what another sells his coal for, and one was very indignant when I innocently and thoughtlessly read some sales from the copies I had made. The railroad operators have no association. As every trade has had combination, from the patient peanut seller up to the cunning banker, by which they all bleed the consumers and users of their respective products, it seems to me that it would be politic for the railroad operators to endeavor to also combine to extract their share of the public money; then perhaps they could pay the miner more for his labor, and make a larger margin for themselves. During the sittings of this board I think all have come to the conclusion that the interest of the miner is the interest of the operator, and that the prosperity of one ought to follow the prosperity of the other.

And now, after a tedious and exciting sitting of the first Board of Arbitration and Conciliation of Pennsylvania, we have adjourned. We could not get the 3-cent scale adopted, neither did the operators get their 2-cent scale. Three months ago it would have been easier for the board to agree upon a scale which would be a lasting benefit to all. Had the board agreed upon a basis at present, while the coal market is feverish and forced, the floods and the 2 1/4-cent coal rushing down the river would have swept away the highest and best scale in the world, and would have buried every hope of peace and a scale so deep that it could not be raised for ten years. We return home with 3 1/2 cents for you during the month of November. You might have received the same by a strike, but by the board it is conceded to you without losing an hour's work, and the expense of the entire sitting will not be over 5 cents per head. Besides, there is a better understanding, a better feeling and a better promise for all. There is a wild boy in nearly every family, and there are rash men among every crowd. While your committee may be sitting upon this board, and until they return home, attend to your business, read the reports in the papers, criticize and discuss all the actions of every member, but do not endeavor to stir up discord and strife by calling mass meetings and appealing to the passions of the most unreasonable. Plenty of time there will be always, after your representatives return and report to you. Your honor and good faith are at stake. The public is watching your actions, and they will remember you in the future, and while your arbitrators are assembled here around the table, listen to and obey the cooler heads at home. You may growl and grumble, blast, and, if you please, curse as much as you are able, but never talk about striking while your committee are here pleading for your rights before the operators. Forever condemn any attempt, from any man, to be a big gun or a small one, to call a mass meeting to inaugurate a strike while conciliation is acting, or while arbitrators are deciding disputes between the miner and operator. Such attempts strike at the fountain of all honor; they will break and stain the good name and the good faith of the miners of Western Pennsylvania.

We will work peacefully this month at 3 1/2 cents, and if December will yield more, we will press our demands again, and so long as the operators are willing to give us exactly what a scale would give us, I don't see any cause to grumble. Providence seems to deal hard with our river friends. There are no prospects of a rise. The cold blasts of winter have come, destroying the hopes of the river interests, and about the best thing the river miners can do is to move away, for the longer they work at starvation prices the deeper into poverty and helplessness they will sink, and with them they will drag their fellow workmen elsewhere. The operators are building boats and are having them filled for 2 1/4 cents. Well, they know that for every bushel the poor and helpless coal diggers are forced to dig at 2 1/4 cents, they will make a clear profit of at least 1/4 of a cent, and may be more, in the present condition and prospect of the coal trade. Hence the building and the hurry to fill new boats.

The operators on the board have asked your secretary and the miners everywhere to use all honorable means to have a uniform price. This is to our interest, because a difference in price tends to level down all; and it is to the interest of the operators, because when all pay the same for digging, all have the same chance in the market. Uniformity in demands, action and price will slowly, but surely, lift all to a better plane of condition, and this object only should move and control the desires of every heart and the thoughts of every mind.

I should not close my remarks without thanking, in behalf of your committee, the arbitrators from the operators for the kind spirit they have at all times shown to the representatives of the miners, and we assure them that we will do all in our power to persuade the miners everywhere to ask and demand the uniform price, so as to give them all an equal chance in a close and competitive market.

Building a 15-Ton Steam Hammer at Pittsburgh.—Messrs. Park Bros. & Co., of Pittsburgh, have decided upon the erection of a 15-ton steam hammer at their works at Pittsburgh, and work will be commenced at once and rapidly pushed to completion. This will be the largest hammer in the country, and will maintain Pittsburgh's reputation for large work. The largest at present is one at the works of the Nashua Iron and Steel Co., which is rated at 10 tons. The greatest difficulty in connection with the erection of this hammer will be the anvil block. In accordance with the rule that for forging steel the block should weigh 10 times the hammer, this would require a 150-ton anvil, and it is desirable that it be cast solid, as an anvil made in parts never is so satisfactory. Some time since they asked for bids for an anvil and could only get them on an anvil in sections, and therefore concluded to cast the anvil in one piece themselves. Two furnaces will be erected for this purpose, and the anvil will be cast in the earth face down at the side of the foundation upon which it is to be placed, and upon which it will be turned by the use of hydraulic screws. The furnaces used for the casting of this block will be temporary structures, and will be removed as soon

as the anvil is cast. The furnaces for casting the 15-ton hammer head will be permanent, and will be for use in connection with the hammer afterward. A 5-ton hammer will be erected near the larger one, and will be used in finishing the work of the larger. The 15-ton hammer will have a 9-foot stroke, which will give a blow of some 35 or 36 tons, sufficient to work a 20-ton ingot. The whole plant will cost some \$60,000 to \$70,000. It will require about six months to complete the work.

Coke Manufacture in Colorado.

An enterprise of great importance to the mining industry of Colorado and Utah, which has been perfected recently, and with every promise of success, is the manufacture of coke. For certain purposes, notably for the reduction of argentiferous lead ores in blast furnaces, the charcoal obtained in the Western mining regions was so expensive a fuel that coke, brought at an enormous expense from the Connellsville region of Pennsylvania, proved to be more economical. Diligent search was made among the tertiary coals of Utah and Colorado to find a material which would coke sufficiently well to bear transportation, and to carry the burden in a lead blast furnace. Most of the lignites discovered proved unavailable for the purpose, until attention was drawn to the El Moro coals of Southern Colorado. Gen. D. C. Dodge, of Denver, was the initiator of the enterprise, constructed first, three and then six coking ovens at El Moro, but as the consumption of Utah is calculated at 1500 tons per month and that of Colorado at about 3500, there was room for a large increase of capacity. It was found, however, that the coke produced by the Southern Colorado Coal and Town Company, the corporation which has taken the enterprise into its hands, contained as much as from 16 to 23 per cent. of ash, due to the presence in the vein of the coal of several seams of "bang coal," varying in thickness from one-quarter of an inch to several inches. This was obviously necessary to eliminate by washing the coal, and the company accordingly determined to erect works, for which they contracted with S. Stutz, a Pittsburgh mining engineer. We need not enter into a description of the machine used by Mr. Stutz. The apparatus is a crusher and the Stutz Jig, which was illustrated in the Iron Age of June 13, 1878. The plant consists besides of a horizontal engine, with steam cylinder of 14 inches diameter and 30 inches stroke, the dimensions of the engine being such as to give ample power to drive a second set of crushing and washing machinery if necessary. A No. 8 fly-wheel pump of the Keystone pattern furnishes the necessary water to the washer. Steam is produced by two cylindrical boilers, 40 inches in diameter and about 22 feet long. The main building measures 28 feet by 30 feet, and 20 feet high. The steam engine and the washer, with its elevator, are located on the ground floor, while the shaftings and pulleys are on the second floor. The crusher room is between the main buildings and the coal bins, and covers an area of 15 x 22 feet. Opposite it, and in front of the main building, are the hoppers, 14 x 16 feet each, while on the north side is located the boiler room, 12 x 30 feet. The cost of the entire plant is said to be \$12,000, and the cost of washing is estimated at \$4.50 to \$5.62 per ton for a production of 200 and 250 tons of clean coal respectively. Seventy coke ovens are now in operation, while thirty more beehive ovens are to be built. The coke produced from the washed coal has a bright silvery color, and is said to be so hard and strong that it can bear any transportation. The average percentage of ash is 10 per cent.

The Free Delivery System.—The Superintendent of the Free Delivery Service, in his report says that during the year the letter-carrier system was extended to only one additional city—Oakland, Cal.; and the additional funds were expended principally in adding to the number of carriers in the larger cities. The service, though perhaps not so frequent as it should be in some of the larger cities, is well systematized and reasonably frequent in most of them, and is believed to be generally satisfactory. The aggregate number of letters, postal cards and newspapers handled by the 2359 carriers in the 88 free delivery cities was about 810,000,000, being an average of over 339,000 pieces for each carrier, and an increase in the total number of pieces of nearly 100,000,000. The total cost of the service was \$1,947,706, an increase of about 6 per cent., and the amount of postage on local matter deposited at the free delivery offices was \$2,812,523, being an increase of nearly 15 per cent. Since the close of the fiscal year the system has been extended to 11 additional cities.

New Steamers for the Cunard Line.—For many months it has been resolved by the Cunard Company to place at least one new steamer of great size and speed for their passenger and mail service between Liverpool and New York, even considerably outstripping the latest addition to their fleet, the Gallia, in both of these qualities. The steamer to which we refer, it is confidently stated, will be put in hand shortly; moreover, the order will embrace two vessels instead of one, and about 3000 tons of steel will be required in each case. Bearing in mind the statement made on the occasion of the launching of the Gallia, that the Cunard Company meant to go ahead and let none outstrip them, we may conclude that the two new vessels which are soon to be proceeded with will be without equals among the great ocean steamships now afloat.

The La Crosse Steam Boiler Works, M. Funk, proprietor, manufacturer of stationary and portable steam boilers, patent wrought-iron hot-air furnaces, tanks, stacks and sheet-iron work of all kinds, has been established there since 1865. The works occupy two large structures of stone and brick, one 40 x 75 feet and the other 32 x 75 feet, two stories high. Mr. Funk keeps some 18 to 20 experienced workmen constantly employed, and the works are driven to their full capacity to keep up with orders.

The Iron Age

Metallurgical Review.

New York, Thursday, November 13, 1879.

DAVID WILLIAMS - - - Publisher and Proprietor.
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Sixty-second Page.—Boston and St. Louis Hardware and Metal Prices.

instead of \$3.40 and \$3.30 respectively, an advance of 25 cents per keg. This carries with it an advance in the price of cutting nails, the price per keg for cutting rod, being 24 cents instead of 21, as it has been since January 3, 1875. This does not necessarily imply that there will be an advance in iron. The difference in price that has existed between bar iron and nails for several months has not been enough to cover the difference in cost of manufacture, and this advance is simply to make a nearer approach at least to equalizing this difference.

The Treasury Decision on Steel Blooms.

We recur to this topic again, because the decision of Assistant Secretary French raises some questions which at first sight did not seem to be involved, but which are of vital importance in their relation to our tariff laws. Indeed, we shall be surprised if this decision does not, in the end, prove to be one of the most important tariff decisions made by the Treasury Department for years.

In the first place, it is well to understand clearly the ground on which this decision rests, and consequently the line of argument that must be used in showing that it is unwarranted. The ground of the decision is, or is intended to be, purely legal. It will no doubt be a source of deep regret to Secretary Sherman, if, as the result of this decision, any American workmen are deprived of employment, but with such considerations as this, he, as Secretary of the Treasury, has nothing to do. He has no right to allow them to influence him. However potent and weighty such arguments are in the Committee of Ways and Means when tariff laws are being framed, or on the floor of Congress when they are being discussed, it is evident that an officer whose functions are purely executive, has no right to consider them. His duty is to ask what is the law and what its proper interpretation, and it is doubtless on the law and what he considers its proper interpretation, that Secretary Sherman has sustained the ruling of Judge French.

Now, it appears to us that no better argument can be found against the importation of steel blooms under a duty of 45 per cent. than is furnished by the law itself. As this point was so ably argued in the letters and interviews which appeared in the last issue of *The Iron Age*, it is unnecessary to again traverse this ground. The line of argument, taken in logical sequence, is this: The term "bloom," as applied to steel, is a misnomer, and has crept into the nomenclature of steel with only the warrant of loose colloquial usage. A bloom in its strict sense, and in the sense in which it was most commonly used at the time of the framing of the tariff, is the product of a "blooming," a term well understood in iron circles. What are now, by the question raised, termed "blooms" were known as "cogged ingots," and if the term bloom was applied to them at the time of the 1867 decision, the usage of the trade and the works on the subject will show that the terms "blooms" and "ingots" were used interchangeably. Webster, in his edition of 1877, the one at hand, gives no definition that will admit of the application of the word "bloom" to anything but iron. This being so, it is argued that "steel blooms" must be classified with ingots and be subject to the same duty. To strengthen this position the "similitude" clause is invoked, and it is claimed that "steel blooms" are more like ingots than anything else—so near that it would be impossible for an expert even to tell which was a bloom and which an ingot under most circumstances. This is in outline the direct argument of the steel manufacturers.

The position taken by Judge French, that the so-called blooms are not dutiable under any enumeration of Schedule E, but must come in under Section 1012 of the Revised Statutes, does not seem consistent either with the law or its previous interpretations by the department. By his own letters and argument the blooms in question were steel rails partially manufactured, and should, therefore, come in under the last clause of Section 1012, paying the same duty as though wholly manufactured. Moreover, as the Assistant Secretary acknowledges that they are intended for rails and are in form best fitted for rolling into rails, they should bear the same duty as rails. In answer to Secretary Sherman's *non possumus*, on the ground that his predecessors have decided that such articles are manufactures of steel and not articles partially manufactured, it is said that the decision on which all others hang, that of July 27, 1867, is no decision of this question at all, but leaves it in doubt. It only decides that if the appraiser at New York was right in his classification, then the duty is 45 per cent.

It seems to us that this argument is of sufficient weight to justify a rehearing. If the decision of 1867 is, as claimed, no decision of the question as to the character of "steel blooms," the secretary's *non possumus* will not hold.

Our Foreign Trade.

The monthly statement for September of the Bureau of Statistics, shows for that month an excess of domestic exports over imports of \$20,620,087, this being also almost the identical figure for the month of September a year ago. For the whole year ending September 30, the United States shipped to foreign countries \$256,546,277

worth of her products in excess of the value of goods imported. For the previous year, namely, the 12 months ending September 30, 1878, the difference was a little larger, the excess of exports being \$294,913,337. It is believed in Washington that the receipts of gold from Europe between this and January 1, 1880, will be over \$25,000,000, and may possibly reach \$30,000,000. The coin and bullion imports for September, mostly gold, were \$28,360,000.

The satisfaction which these statistics will give the business community will probably be somewhat tempered by the fact that our enormous commerce is carried almost wholly by foreign ships. Only 17 per cent. of the grain, provisions, cotton, tobacco and other products shipped abroad were carried in American vessels, the reason of this being that this trade now seeks steam transportation. The Americans have only four steam vessels running to Europe, while foreigners have from 150 to 200 in the trade. Of the goods imported, 32 per cent. was carried in American vessels, the larger share of the business enjoyed by the Americans being due to the establishment of Mr. Roach's line of steamers to Brazil, and to the fact that the trade with Cuba is now transacted almost entirely in American bottoms. Cheap ships would not help our shippers any, as it is not the cost of building, but the cost of running ships which determines the chances of success in ocean steam navigation. It would be very advantageous to have a larger representation in the world's merchant marine, and no doubt this will come; but it is not so desirable that we need sacrifice any greater good to the attainment of that end. The consistent protection of home industry gives better results than could be secured by sacrificing home industry to gain the doubtful advantage of the chance to buy cheap British ships. If we cannot have a large merchant navy and adequate protection to American labor at the same time, we had better wait for the former than gain it at the expense of the latter.

Our Trade with Central America.

The five Central American States, together with the present Mexican State of Chiapas, formed the Spanish Captaincy-General of Guatemala until 1821, when the latter was incorporated with Mexico. On the fall of Iturbide, in 1824, a separation took place, and Guatemala constituted itself an independent Republic under the title of the Federal Republic of Central America. A period of anarchy and civil war followed, ending in the splitting up of the confederacy into the present five independent States. It is one of the most favored regions on earth, so far as fertility and geographical position are concerned, and but for the frequency of earthquakes, it might be called the most desirable place of residence in the world. It is a well-known fact that most volcanic countries possess valleys of unusual fertility, and this is the case in an eminent degree with the plateau of Central America—unexcelled in the production of fine-flavored coffee, and all other tropical products. Watered as this magnificent region is by the Atlantic on one side and the Pacific on the other, by rivers and lakes, with a due measure of rain, it enjoys advantages which no other country can boast of except the State of Panama, which is one of the United States of Colombia. Nicaragua, with its great inland lakes, its San Juan River, and the narrow strip of land which intervenes between the lake and the Pacific Ocean, is to Americans the most practically interesting among the five States, and as it is more than probable that eventually American enterprise and capital will link the two oceans at this point, we have gathered some statistics showing what our commerce with that part of the world amounts to.

AREA AND POPULATION.			
Sq. m.	Populn.	Capitals.	Popln.
Guatemala..	97,450	1,190,754	Guatemala.. 45,000
San Salvador..	4,939	434,520	San Salvador.. 16,000
Nicaragua..	59,171	300,000	Managua.. 100,000
Honduras..	31,711	351,700	Tegucigalpa 120,000
Costa Rica..	14,474	185,000	San Jose.. 12,000
Total.....	117,754	2,461,974	95,000

The revenue of Guatemala in 1877 amounted to \$4,503,523 and the expenditures to \$4,428,298. The public debt on Jan. 1, 1875, stood \$3,877,384.

Following has been the trade of Guatemala in thousands of dollars during three years:

	—1874—		—1875—		—1876—	
	Imp.	Exp.	Imp.	Exp.	Imp.	Exp.
Unit'd Kingdom	1,389	784	1,083	1,071	1,125	1,096
United States...	206	1,104	204	833	240	1,006
Germany.....	329	759	241	747	264	884
France.....	455	403	480	324	450	610
Other countries	735	244	578	228	632	83

The principal articles exported in 1876 were coffee, 20,740,100 pounds, worth \$3,318,397; cochineal, 615,850 pounds, \$246,347; hides and skins, \$44,026; cedar wood, \$1,095; cotton, \$9000; cocoa, \$7035; sarsaparilla, \$5973; indigo, \$4400, and India rubber, \$3420.

There arrived in 1876 at the port of San José 23 vessels, six of which were German, three American and one English. Between three and five American steamers call at the Pacific ports monthly. No railroads exist at Guatemala, but there is a telegraph line, 1108 miles in length, with 45 offices.

San Salvador is the smallest and most densely populated Republic of Spanish America. The revenue of the State in 1876 amounted to \$1,096,591 silver, and \$322,604 paper money. Duties furnished \$453,586 in silver and \$297,241 in paper, and the liquor tax, \$479,425. The expenditure was \$1,794,742.

282; deficiency, \$697,691. The public debt on Sept. 30, 1876, was \$1,072,948. During the fiscal year ended Sept. 30, 1876, the imports were \$1,869,083, against \$2,689,968 in 1875. The exports amounted to \$3,605,023 in 1876, against \$3,179,514 in 1875. Indigo was the most important article of export, \$1,561,699; coffee, \$1,209,562; ores, \$157,732; sugar, \$119,180; balsam, \$71,110; tobacco, \$42,175, and hides and skins, \$41,340. During the fiscal year ended 30th Sept., 1877, the import was \$2,586,431, and the export, \$3,960,932; coffee being represented by \$1,686,194 and indigo by \$1,636,227. The Pacific Mail Steamship Co.'s steamers on the Pacific touch at the ports of all the States three or four times a month.

Nicaragua has made considerable progress during the past 20 years. In 1858 the revenue did not exceed \$211,405, while in 1876 it reached \$2,324,998. The republic has no foreign debt; the home debt amounted on Dec. 18, 1876, to \$3,480,177.

Following has been the trade movement in thousands of dollars:

	—Import.—		—Export.—	
	1875.	1876.	1875.	1876.
Greytown or San Juan del Norte..	578	585	794	796
Corinto.....	320	373	794	498
San Juan del Sur.	49	66	222	156
Chinandega.....	4	7	19	11

The leading articles of export in 1876 were: India rubber, \$377,586; coffee, \$280,623; gold and silver bullion, \$225,745; fustic, \$100,866, the balance being indigo, hides and skins, cedar wood, &c. There entered the port of Corinto in the same year 35 vessels, twelve of which were German.

Honduras has an annual revenue of about \$388,000, one-third thereof being produced by the custom houses, and the remainder by monopolies.

The debt consists of the following items:

English 10 per cent. loan of 1867, placed at 80 per cent.....	\$1,000,000
French 6 per cent. loan of 1868, placed at 75 per cent.....	2,490,108
English 10 per cent. loan of 1870, placed at 80 per cent.....	2,500,000
Total.....	\$5,990,108

Adding unpaid overdue coupons, the debt amounted at the close of 1875 to \$7,220,272.

The export amounted in 1875 to \$1,305,000, as follows: Gold and silver bullion, \$600,000; indigo, \$200,000; cattle, \$150,000; dye and cabinet woods, \$180,000, and \$100,000 worth of hides and skins. The ports of entry on the Atlantic are Trujillo and Omoa; on the Pacific there is Amapala. Since 1871 there has been in operation the railroad from Puerto Caballos to Santiago, 56 miles.

Costa Rica is one of the best governed States of Spanish America, active and enterprising, and there is now building through the center of the Republic the Inter-oceanic Railway, which is making headway rapidly. During the fiscal year ended April 30, 1878, the gross revenue was \$3,819,211, and the expenditure of the State \$3,904,657, \$590,291 of which was spent on public works, including \$466,666 for railroads. In 1871 the government made a loan in London, issuing \$1,000,000 of 6 per cent. bonds, and in 1872 one for \$2,400,000 at 7 per cent., at the rate of 82 per cent. The foreign debt had been reduced in 1876 to \$1,011,611. The assets of the State in the Treasury, &c., April 30, 1877, were \$9,509,544 and the liabilities \$7,134,061.

The amount of exports in 1877-78 through the port of Punta-Arenas was \$5,887,062, and through that of Limon \$200,000. Of coffee there were exported 28,804,480 pounds; hides and skins, 394,169; india rubber, 71,167; copper, 9473; mother-of-pearl, 7250, and sarsaparilla, 4032 pounds.

Maritime Movement in 1877.

Entered Punta-Arenas. 82 31 174,334

Clearances..... 81 28 167,288

The entries at Punta-Arenas consisted of 82 American vessels, 6 English, 8 French, 5 German, 7 Colombian and 5 belonging to other nations; the departures were 80 American, 5 English, 7 French, 3 German, 3 Colombian and others.

The railroad lines in operation are the following: The Alajuela-Cartago line, via Heredia and San José, 27 miles, and the Limon-La Matina line, 37 miles, and there are 202 miles of telegraph with 16 offices.

Reducing everything to thousands of dollars, we find the following trade movement between the United States and the five States:

	Fiscal year 1864	1865	1866	1867	1868	1869	1870
Import.....	598	490	746	616	1122	3165	2773
Dom't export	313	251	372	644	301	2516	2404
For.....	39	17	39	98	75	81	82

944 758 1350 1658 1438 5761 2559

Fiscal year 1871 1872 1873 1874 1875 1876 1877 1878

Import..... 1528 1600 1981 2866 2677 1819 2884 2669

Dom. export 590 1407 1279 1381 1043 938 913 1205

For..... 20 71 68 83 139 41 52 150

1718 3087 3378 4360 3809 2798 3849 4330

Making a total of 44,668.

The domestic export during the fiscal year ended June 30, 1878, consisted of the following goods:

Bread and biscuit.....	\$8,201
Flour.....	473,685
Other bread.....	12,839
Candies.....	6,665
Carriages.....	13,375
Cordage and twine.....	7,367
Cotton goods.....	92,184
Drugs and chemicals.....	18,044
Fruit.....	30,300
Glass and glassware.....	6,514
Mfrs. of iron.....	78,838
Boots & shoes.....	13,728
Leather.....	5,949
Petroleum.....	\$20,518
Paper and stationery.....	6,224
Provisions.....	49,

Special Notices. TO BRASS FOUNDERS.

A Rare Opportunity.

FOR SALE,

THE WHOLE OF THE

Patterns for Brass Goods, Cast

Iron Fittings, and Steam

Radiators,

LATELY BELONGING TO THE

DETROIT NOVELTY WORKS.

The Brass Goods Patterns consist of nearly a full

line of Globe, Angle, Safety and Check Valves, Brass

and Iron Bodies; Safety, Back Pressure and Cross

Valves; Steam Cocks, Brass and Iron; Blow-off Cocks,

Steam Bells, Steam Stops, Union Meter Cocks, Service

Cocks; Mississippi, Tee and Lever Handle Gauges;

Compression Gauge Cocks, Water Gauges, Steam

Whistles, Pet Cocks, Cylinder Cocks, Hollow

Plug, Locomotive and Plain Oil Cups; Gong Bells and

full complement of Brass Fittings; Plain, Wash Tray,

Bath and House Bells; Compression Plain, Hose,

Wash Tray and Bath Bells; Compression and Plain

Stops and Waste, Shower and Circulating stops,

Crooked and Straight Rough Stops, Compression and

Self-Closing Basin Cocks, Basin Plugs; Racking, Boiler

and Globe Cocks; Sink Plugs, Boiler and Water-back

Couplings, Ale and Beer Cocks, Hose Pipe Couplings

and Nozzles.

The Fittings Patterns embrace Elbows, Tees,

Crosses, Return Bends, Flanges, Caps, Locknuts, Bush-

ings, Flange Unions, Manifolds, Flanges and Pipe

Hook Plates.

The Steam Radiator Patterns are complete from 8 to

120 pipes.

A large number of other patterns are also included

in the lot.

These patterns are in good condition, and form a

complete outfit for a Brass Goods Establishment.

They will be sold very cheap, and on easy terms, to

any one who will take the whole. The first cost was

not less than \$5,000. To a firm of small capital they

will afford an opportunity of starting a business and

will afford a valuable business, especially in the West, where

the Detroit Novelty Works were among the largest

manufacturers in their line, and their goods were

well known.

For further particulars apply to the

DETROIT IRON & BRASS MFG. CO.,

Detroit, Michigan.

TUCKER BRONZE.

The trade are notified to cease the sale of iron

goods bronzed by the use of oil or varnish and

high heat, as described in my patent, issued Sept.

11, 1866. These patents have been repeatedly

sustained by the United States Circuit Courts in

Massachusetts and Connecticut, and injunctions

are now in force against the use of the process as

well as the sale of the product.

The Russell & Erwin Mfg. Co. is at present the

only licensee under these patents.

Licensees to use the patented process will be

granted on easy terms, and liberal settlements

will be made for past infringements with those

who apply at once.

Further infringements will be promptly prosecuted.

HIRAM TUCKER,

62 Equitable Building, Boston, Mass.

CHARCOAL FURNACE PROPERTY

For Sale or To Rent,

At Lawton, Michigan, on the Michigan Central

Railroad. In good condition and can be repaired

in a few weeks at a small expense. Abundance of

fuel and cheap labor. Very favorable freight con-

tract goes with the property.

Apply to

D. VAN NOSTRAND, Treasurer,

23 Murray Street, New York.

Or to HENRY FORD, Agent,

Lawton, Mich.

WANTED—By a young man who has traveled

as representative of two leading wholesale

hardware establishments in Montreal for 7 years,

through all parts of the Dominion of Canada, and

possesses a thorough knowledge of both the country

and merchants, a situation as traveler for a

mercantile or manufacturing firm desirable of

pushing their business in the Dominion. Will be

open for an engagement on or before the 1st of

January next. Unexceptionable references.

Address, BOX 855, Post Office, Montreal, Canada.

WANTED—RAILS.

Any party having 200 to 300 tons of second hand

good iron or steel rails, from 30 lbs. to the yard

and upward, for sale, can address,

D. H. JEROME & CO.,

Saginaw, Mich.

WANTED—A situation in a manufacturing

or jobbing hardware house, either as book-

keeper, cashier, stock buyer or salesman; 35 years

of age; have had 20 years' experience in one large

Company in this city; thoroughly posted in the

business, from manager down. Salary moderate

and reasonable.

Address, MERCHANT,

Station "L," New York City, N. Y.

AT PRIVATE SALE.

A Merchant Bar Rolling Mill, well located, with

excellent railroad connections. Immediate posses-

sion can be given. When in operation had a

good reputation as a bar mill. Price moderate

and terms easy.

For further particulars address,

CHRISTIAN PRETZ,

Allentown, Pa.

FOR SALE.

Boiler 150-horse-power, engine 200-horse-power,

and other smaller sizes. Machinery for rolling

steel tires complete. Machinery for making ice

with the greatest economy. All sizes built at short

notice. Boilers built at order warranted the most

economical.

Apply or address

LESLIE, Manufacturer,

Railroad Avenue, Jersey City.

ROLLING MILL FOR SALE AT A

GREAT BARGAIN—A complete Mill, well

supplied with water and steam power, everything

required to make merchantable iron; elegantly

located; will be sold at a great sacrifice. Apply to

P. CASSIDY, 4 to 10 Bridge Street, Brooklyn.

FOR SALE OR TO LEASE.—Factory

property, Elmhurst, N. J., comprising

casting, annealing, tumbling and finishing shops;

also engine and boiler and tools to make saddle

hardware or other malleable iron goods.

P. BALEN, 84 Broad St., New York.

TO FURNACE MEN.—FOR SALE OR

LEASE.—Group of developed Magnetic Iron

Mines, convenient to shipping point on Lake On-

tario. Cross run about 60 per cent. metallic iron,

and make tough iron or Bessemer steel. Average

cost making and freight to Cleveland about \$2.50

per ton. Apply to HAWDEN & MACHAR, King-

ston, Ontario.

AN EXPERIENCED TRAVELER

acquainted with the Hardware trade

throughout the West, desires an engagement

January 1st, with an Eastern manufacturer of

specialties. High reference.

Address, BOX 26, Chicago.

Trade Report.

Office of THE IRON AGE,
WEDNESDAY EVENING, November 12, 1879.

During the past week the financial markets

have been active and the volume of business

large. In the local money markets the rates

on call have ranged as high as 7% and a

commission of 3/4 of 1% per day, but most

accommodations have been secured at 6 1/2%.

The relief of the stringency in the

money market which has come toward the

close of the week, was due to the purchase of

\$10,000,000 U. S. 6% bonds by the Treasury,

which put an equal amount of gold in circula-

tion. The specie import continues large.

The total from January 1 to November 7th

was \$63,992,418, consisting of \$55,173,280

gold and \$8,819,138 silver. From the 1st of

August to November 10, inclusive, the im-

portations foot up \$56,927,564, including

\$8,223,019 American gold coin, \$33,549,635

foreign gold coin, \$13,433,598 gold bullion,

\$98,914 gold dust, \$1,016,741 American sil-

ver coin, \$600,887 foreign silver coin, and

\$14,790 silver bars. Of the total during this

period, \$34,690,957 was from the Continent,

\$17,439,761 from Great Britain and \$4,796,-

846 from West Indies and South America.

Government bonds have been strong dur-

ing the week, with an advance of 1/4

at 1 1/4%, but owing to the refusal of the

Treasury to pay more than 106 for the 6s of

1880-81, these declined to previous quota-

tions. Railway mortgages are strong and

in good demand.

The stock market was quiet until Satur-

day, when prices began to fluctuate with a

downward tendency, followed by a strong

upward movement. We give below the

closing quotations of active shares.

The bank return shows a decrease of

\$359,425 in reserve, which now stands

at \$671,225 deficiency, against \$12,844,200

excess at this time last year, and \$8,878,575

at the corresponding period in 1877. The loans

show a loss this week of \$1,161,800; the

specie is up \$1,143,500; the legal tenders are

decreased \$5,129,000; the deposits other

than United States are up \$2,484,300, and

the circulation is decreased \$259,000.

The following is an analysis of the bank

totals of this week compared with that of

last week:

	Nov. 1.	Nov. 8.	Comparisons.
Loans.....	\$271,238,600	\$270,076,800	Dec. \$1,161,800
Specie.....	29,675,300	33,818,800	Inc. 4,143,500
Legal tenders	28,615,900	23,484,300	Dec. 5,129,000
Deposits.....	58,291,200	57,130,700	Dec. 1,160,500
Reserve re-	334,412,000	331,927,700	Dec. 2,484,300
quired.....	58,603,000	57,981,925	Dec. 621,075
Deficiency.....	311,800	671,225	Inc. 359,425
Circulation.....	22,000,500	22,341,500	Dec. 339,000

The foreign trade movements at the port

of New York since our last issue, are shown

in the following tables:

IMPORTS.

For the week ended November 8:

	1877.	1878.	1879.
Dry goods.....	\$735,603	\$1,336,871	\$1,275,151
General mchse.	4,036,738	2,744,995	5,222,388
Total for week.	\$4,772,341	\$5,079,836	\$6,497,541
Prev. reported.	275,386,516	243,797,544	274,726,757

Since Jan. 1....\$81,340,857 \$248,867,381 \$281,294,298

Included in the imports were items of

merchandise valued as follows:

	Quantity.	Value.
Copper.....	10,081	\$10,081
Cultery.....	75	25,394
Gas fixtures.....	148	1,148
Guns.....	25	6,398
Hardware.....	1,510	1,510
Iron, hoop, tons.....	70	2,158
Iron, pig, tons.....	105	95,771
Iron sheet, tons.....	163	7,674
Railroad bars.....	2,260	11,260
Iron ore, tons.....	615	3,274
Iron, other, tons.....	79	79,000
Metal goods.....	133	10,917
Needles.....	13	9,080
Nickel.....	15	1,851
Old metal.....	15	1,851
Platina.....	15	1,851
Plated ware.....	3	37
Percussion caps.....	7	1,848
Saddlery.....	14	2,084
Steel.....	330	4,573
Silverware.....	7	6,297
Tin, bks.....	29,161	157,029
Tin, 3-335 slabs.....	227,801	37,530
Wire.....	2,650	7,430

EXPORTS, EXCLUSIVE OF SPECIE.

For week ended November 11:

	1877.	1878.	1879.
For the week.....	\$7,465,449	\$6,301,806	\$6,819,600
Prev. reported.....	242,383,360	294,625,474	295,228,857
Since Jan. 1.....	\$249,849,109	\$301,017,370	\$302,048,457

EXPORTS OF SPECIE.

For the week ended November 8:

behalf of his firm having 'boom on the brain,' but at the same time an advance of prices is hailed by manufacturers as a happy deliverance from a depression which threatened general ruin."

"Booming on the brain" is about as complete an expression of the general judgment in the Hardware trade on the operations of manufacturers at present as could well be found, and how completely ruinous it may result to our future prospects of an honest revival of an honest and not a "booming" business, it doesn't need a very sagacious mind to determine.

The letter of H. O. P., while it contains some suggestions worthy the consideration of manufacturers, presents statements which are slightly overdrawn, to say the least; as for instance, "The larger part of this advancing movement has been really to instigate the unwary to undue speculation." This statement will not stand even H. O. P.'s sagacious reasoning, for we find, after showing, very satisfactorily to himself, that the makers of Cast Butts, Hat and Coat Hooks, Locks, &c., have taken undue advantage of the "boom" to reap a golden harvest, utterly regardless of the appalling consequences they may inflict upon their customers, the following very significant language: "The whole sum and substance of it is that the abnormal and unreasonable reduction in prices last spring, so demoralizing to all the trade, was utterly uncalled for and entirely unnecessary. * * * If these spring prices hadn't obtained at all, the present quotations, except on some leading staples, compared with a year ago, would not seem so extravagant."

And just here we think is the solution of the whole matter, so far as the articles named are concerned. They were selling for months at prices not only too low to afford a profit when raw material was fully 50 per cent. cheaper than it is at present, but, owing to the "abnormal and unreasonable reductions" referred to, these goods were selling in many instances considerably below actual cost. It is very possible that in the great excitement occasioned by the rapidity of the upward movement in raw materials, the values of a good many articles have been overestimated, and it is difficult to see how it could be otherwise; in such cases the effect of competition will quickly adjust all discrepancies.

The statement that Pig Iron is already off \$5 a ton is not a fair one, as H. O. P. would find if he entered the market to buy. It is true that some brands of American Pig can be purchased at prices considerably below makers' quotations, but the only instances of this kind that we know of are cases where Iron was bought at very low prices for purely speculative reasons, and the holders of which are now anxious to realize. In this way we have reported a brand of Lehigh No. 1 offered at \$27. It should be borne in mind, however, that, although some sales of Pig were made at as high figures as \$30 and \$31, very little Iron at those prices changed hands, and we doubt very much if manufacturers, in making their cost estimates, took such figures into consideration. In our judgment, while it will doubtless be necessary to readjust prices in some lines of goods before the commencement of the spring season, no general reaction in Hardware values need be apprehended, unless Iron should go lower than seems to be likely at present.

BRITISH IRON MARKET.

[Special Report by Cable to The Iron Age.]

LONDON, Wednesday, Nov. 13, 1879.

Scotch Pig.—Since last Wednesday prices have fluctuated in both directions, but the market is now firmer, and there is a fair amount of business doing. There is an advance over last week's quotations of 1/10 in Gartsherrie and 3/10 in Eglinton, Coltness and Gleggarnock remaining unchanged. Following are the quotations:

Gartsherrie.....6s/6
Coltness.....6s/6
Eglinton.....6s/6
Gleggarnock.....6s/6

Manufactured Iron.—There is an improved demand for Manufactured Iron, and quotations have been advanced. A large business has been done. We quote best Staffordshire Bars, £8.

Rails.—The market is active and prices firmer. We quote Welsh, £4. 15/ @ £5. 10/.

IRON.

American Pig.—The Iron market has relaxed into quietude, so far as regards Pig metal, and few transactions worthy of mention have transpired since our last report. We hear that a lot of No. 1 Allentown, amounting to nearly 1000 tons, which has been on the market in second hands for some time, was this week closed out on private terms. The importations of foreign Iron continue heavy, and have a very depressing effect on the market, as holders are, in some instances, very anxious to realize. We quote: Foundry No. 1, £27 @ £28; Foundry No. 2, £25 @ £26; and Gray Forge, £26 @ £27.

Scotch Pig.—The market for Scotch Iron is weak, and in buyers' favor. The arrivals during the week have been considerable, and from what we can learn have all gone into yard. No sales, except in a retail way, have come to our notice, and we quote: Eglinton, £26; Coltness, £28 @ £29; Gleggarnock and Gartsherrie, £26.

Rails.—In the absence of business we quote, nominally, Steel, £58 @ £60, and Iron, £49 @ £52.

Old Rails.—No new business has come to our knowledge during the week. We quote, as before, \$31.50 @ \$32.50 here.

Scrap.—Sales are reported of between 1200 and 1300 tons of Wrought Scrap at \$33.50 @ \$34. We quote: No. 1 Wrought, to arrive, \$33.50 @ \$35, and from yard, \$37.

METALS.

Copper.—This metal has been remarkably quiet during the week, sales not exceeding 100,000 pounds Lake Superior at 21 1/4¢ @ 21 1/2¢, which is the closing figure, while Baltimore may nominally be quoted as much. Manufacturers laid in at the time a sufficient supply, and since the ruling rates have been established speculation has become pretty much extinct. The arrivals of re-shipped American Copper thus far sum up some \$50,000 pounds. London has remained steady at £72 for Best Selected, and £66 Chili Bars. News from Valparaiso announces another Chilean victory, the taking by assault of Pisagua, while Iquique, Arica and other ports were being hermetically sealed by the blockading squadrons, and an attempt was thus made to starve the allies into submission. In this Chile may soon succeed. "London, November 1, 1879.—An ordinary observer knows perfectly well that advanced prices lead to reduced consumption; not that it can be said that the present prices are so high as to interfere with consumption; but that a hasty advance does temporarily check and cause buyers to withhold their orders; and if sellers imagine that by upholding prices they will find themselves lamentably mistaken; and if any such attempt is persisted in, they may find to their sorrow that bought experience is painfully expensive." The combination prices of Manufactured Copper were advanced recently. We quote: New Sheathing Copper, 28¢; Braziers, 30¢; Bolts, 30¢, and Bottoms, 33¢.

Tin.—The English and East India markets have been receding almost without interruption since our 1st report. Yesterday London cabled Straits Tin, £22. 10/; to-day it is down to £21. Penang has dropped as low as \$26.70 per picul, with 3/11 exchange, and Singapore to \$27. The New York market, meanwhile, continues inactive, and the general pause is thus still kept up, the more so as holders do not attempt to force sales. Receipts since our last have been 3200 slabs Straits, and 1500 Ingots Australian. We quote at the close, large lots, Straits, 23¢ @ 23 1/2¢; English Refined, 22 1/2¢ @ 23¢; do. Common, 21 1/2¢ @ 22¢, and Banca 25¢. "London, Nov. 1.—The position of this metal is less favorable than was the case last week, and at the early part of this week the market dropped considerably, until about £36. 10/ was accepted. This decline was owing chiefly to the realization of some old stocks, which at times were placed in heavy quantities upon the market, but toward the close of Wednesday afternoon the market slightly recovered itself, and business was reported at £37 @ £37. 10/, and yesterday a still further advance occurred, transactions being carried through between £38. 10/ and £40, and the price to-day is £39 nominal. The deliveries for the month are reported at 2700 tons, which is considered very satisfactory, being 1357 tons above those of last month. The visible supply in England and Holland to-day is 14,413 tons, against 15,641 Nov. 1, 1878, and 14,084 on Nov. 1, 1877. The price of Straits, £25, against £26 Nov. 1, 1878, and £29. 10/ Nov. 1, 1877. Tin plates have remained firm at the following quotations for large lines, ordinary brands, per box: Charcoal Bright, \$8; do. Ternes, \$7 @ \$7.25; Coke Tin, \$7.25 @ \$7.50, and do. Ternes, \$6.50. The consumptive demand has been unexpectedly active; dealers, on the other hand, having replenished their stocks, are not buying much. Abroad the market is very strong, especially as regards Charcoal Tin, orders for which are refused. The cable quotes nominally, 27/6 @ 28/6, and Cokes, 24/.

Messrs. Sanders Brothers write from London, October 28: "Continental buying has been on a small scale during the month, and it is really the American demand that has brought about such a change in the aspect of the market."

Lead.—Lead, since our last report, has strengthened considerably. We hear of sales of 200 tons Newark at 5 1/2¢, and there are rumors of other transactions. The present quotation is 5 1/2¢. At St. Louis Lead has recently sold at 5¢. Stocks here are reported to be low, owing to it is said, partly to the policy of the Eureka and Richmond Companies of reducing the output during the last few months in order to allow the stocks to become absorbed. Refined is strong at 5 1/2¢, at which figure we hear of sales of 200 tons. In St. Louis there have been sales at 5 1/4¢. In connection with Common, it should, however, be remembered that the shot season is about over. Foreign Refined Lead can be laid down here at 5 1/2¢ @ 6¢. Manufacturers' prices are unchanged. We quote: Bar, 6 1/2¢; Pipe, 7¢; Sheet, 7 1/2¢; Tin-lined Pipe, 15¢; No. 1 Solder, 14¢; all less 10¢ to the trade. "London, November 1.—The market keeps steady, showing little or no alteration. There is not much business doing for speculative account, but a moderate demand exists among legitimate traders who purchase for home consumption. Shippers, however, continue to buy rather sparingly, and are evidently indisposed to pay the advance which has already taken place in the value of this metal. English Pigs are quoted at £17. 2/6 @ £17. 5/, according to brand, and Sheet Lead at £17. 15/ @ £18 1/2 ton."

Spelter and Zinc.—Common Western Spelter has become quite scarce, chiefly because the Western product is absorbed out there by manufacturers. We quote the same, with moderate dealings, 6 1/4¢ @ 6 1/2¢. The limit on Silesian Spelter has been placed at 6 1/2¢. We quote American Sheet Zinc, 8 1/2¢ @ 8 1/4¢. "London, November 7.—Spelter has maintained its position without undergoing any material fluctuation in value."

Nickel.—Remains steady at \$1.40 for American.

Antimony.—London quotes the price £63. Messrs. Sanders Brothers, London, report, October 28: "Regulus of Antimony, £65; compared with same date of last year, £49. A strong market, with considerable business up to £65 for spot parcels; the article is very scarce, and makers fill orders in rotation, with eager clamor on the part of buyers for a supply." We are lower at New York, and Cookson on the spot is worth 17¢. This decline is owing to dullness, the statistical position not warranting the lately-rising enhanced prices.

IMPORTS

Of Hardware, Iron, Steel and Metals into the Port of New York, for the Week ending Nov. 11, 1879:

Hardware.

Baldwin Bros. & Co.
Gun barrels, cs., 4
Benziger Bros.
Old rails, pcs., 950
Old rails, tons, 657
Old rails, a quantity
Milliken & Smith.
Wire rods, bbls., 1366
Netherland Trading Society.
Old iron, tons, 405
Old rails, 1037
Nichols, Rathbone & Co.
Varnished iron, cs., 16
Ogden & Wallace.
Bars, 11,058
Hoop iron, bbls., 174
Pearson & Co.
Edison Tools, A.
Mach. y, pcs., 1
Fales T. M.
Mach. y, pcs., 3
Folsom H. & D.
Mach. y, pcs., 11
Glaser J. & Co.
Mach. y, pcs., 370
Godfrey C. J.
Arms, cs., 4
Graef Cutlery Co.
Mach. y, pcs., 1
Guswein F. W.
Hdw., cs., 1
Hall W. C. J.
Mach. y, pcs., 10
Hernandez & Tracy.
Sew. machine, 1
Herrmann H. & Co.
Mach. y, pcs., 45
Hildick A. H.
Chains, cs., 15
Loose chains, 4
Hdw., cs., 6
Hoadley & Co.
Mach. y, pcs., 4
Jennings Sanitary Dept.
Mach. y, pcs., 17
Lamarck H.
Arms, cs., 2
Loewi Edgar.
Hdw., cs., 1
Mason J. W. & Co.
Wire rods, coils, 7
McCoy & Co.
Hdw., cs., 8
Merchandise Dispatch Co.
Guns, cs., 3
Arms, cs., 27
Moore's Sons J. P.
Cartridges cases, 2
Gun caps, cs., 6
Mount J. T.
Hdw., cs., 5
Perkins & Co.
Coal, tons, 688
Ponti Angelo.
Mach. y, pcs., 6
Pichy, pieces, 10
Roebling J. L. Sons & Co.
Gal. wire netting, rolls, 13
Rogers H. H.
Mach. y, pcs., 1
Schoverling, Daly & Gales.
Mach. y, pcs., 2
Arms, cs., 3
Schuyler, Hartley & Graham.
Mach. y, pcs., 9
Shepard & Dudley.
Instruments, cs., 12
Tillotson L. G. & Co.
Gal. wire, coils, 574
Wells, Fargo & Co.
Cartridges, cs., 2
Ward Asline.
Mach. y, pcs., 3
Cutlery, cs., 3
Weston J.
Mach. y, pcs., 4
Wetzlar H.
Mach. y, pcs., 2
Whitney A. R. & Co.
Hdw., cs., 1
Wiebusch & Hilger Hdw.
Co.
Cutlery and Hdw., pcs., 14 & Roelker.
Arms, cs., 34
Wolf, H. & Co.
Mach. y, pcs., 6
Wolf R. H. & Co.
Arms, cs., 3
Steel wire, pcs., 1043
Wire draw. plates, cs., 3
Order.
Arms, cs., 4
Chain, cs., 4
Coal, tons, 1275
Cutlery, cs., 3
Files, cs., 18
Hdw., cs., 11
Hdw., cs., 3
Hdw., cs., 11
Iron wire, tons, 110
Machinery, cs., 8
Met. cartridges, cs., 10
Perforated caps, cs., 10
Whetstones, cs., 8

Steel.
Brown Wm.
Cases, 24
Cary & Moen.
Wire rods, bbls., 336
Bundles, 560
Naylor & Co.
Bar steel, pcs., 18
Sheet iron, bbls., 1396
Prosser Thos. & Sons.
Bundles, 71
Cases, 20
Forgings, 43
Scott T.
Bundles, 100
Wolf R. H. & Co.
Rolled steel bbls., 18
Woodford W. O.
Bars, 28
Bundles, 262
Cases, 12
Order.
Bundles, 258
Cases, 15
Cases, 45
Old rails, pcs., 3247
Old spring steel, tons, 64
Old tires, 351
Scrap, a quantity
Steel rods, bbls., 522

Metals.
Agents Bank of Mon.
Tin and terns pits, bxs., 849
Bache, Simon & Co.
Tin sheet, cs., 5
Baring Bros. & Co.
Tin, slabs, 2091
Boustead & Co.
Tin, slabs, 536
Brown Bros. & Co.
Tin, ingots, 626
Byrne Jos. & Co.
Tin plates, bxs., 469
Cort R. L.
Tin plates, bxs., 300
Fuller, Dana & Fitz.
Tin plates, bxs., 50
Gosler & Co.
Tin slabs, 681
Hendricks Bros.
Lead, pigs, 818
Henry & Menena.
Tin foil, cs., 2
Lamarck H.
Zinc, csks., 180
Rolled zinc, csks., 117
Leavacraft & Co.
Copper, csks., 3
Copper, bbl., 1
Old metal and iron, pcs., 37
Maynard, Geo. Valentine.
Brassware, cs., 2
Merchandise Dispatch Co.
Tin plates, bxs., 220
Pavenstedt E. & Co.
Old copper kettles, tons, 9
Pfizer C. C.
Bismuth, bbls., 4
Bismuth, cs., 4
Phelps, Dodge & Co.
Tin plate, bxs., 10, 189
Black tag's, bxs., 92
Rolled brass, csks., 3
Wrap wire, bbls., 3
Mach. y, pcs., 276
Willett & Hamilton.
Yellow metal, cs., 75
Yates & Porterfield.
Old metal, bbl., 1
Order.
Copper, csks., 203
Lead, pigs, 5483
Spelter, plates, 2555
Tin in cases, tons, 800
Tin, ingots, 6434
Tin plates, bxs., 351
Tin, slabs, 482

EXPORTS

Of Hardware, Iron, Machinery, Metals, &c., from the Port of New York, for the Week ending November 11, 1879:

Danish West Indies.
Nails, kegs... 11 40
Nails, kegs... 403 403

Dutch West Indies.
Tinware, cs., 4 137
Nails, kegs... 12 45
Pitm., gals... 3,350 365
Nails, bxs... 4 118
Revolvers, cs., 2 178
Hdw., pcs... 11 139
Anchor... 1 106

Copenhagen.
Pitm., gals... 117,846 3,743

Hamburg.
Hdw., pcs... 165 1,339
Ma. oil, bbls... 165 1,770
Sew. mach., cs... 631 10,100
Nails, kegs... 50 191
Mach. y, pcs... 234 3,450
Pitm., gals... 3 345
Tinware, cs., 7 270
Ag. imp., pcs... 9 534

Rotterdam.
Pitm., gals... 158,298 11,105

Dutch East Indies.
Pitm., gals... 434,320 44,000

Newcastle.
Handspikes... 144 50

Bremen.
Pitm., gals... 200,787 18,901
Lub. oil, gals... 162 1,600
Cars... 2 1,300
Mach. y, pcs... 15 250
Hdw., cs... 95 626
Tinware, pcs... 7 250
Mf. iron, pcs... 10 355
Glassware, cs... 2 100
Sa. dpa, bales... 46 359

Bristol.
Tin cans, cs... 1 15
Hdw., cs... 5 110

Dublin.
Pitm., gals... 701,111 14,189

Belast.
Pitm., gals... 157,650 11,035

Gibraltar.
Hdw., cs... 2 76
Pitm., gals... 10,000 1,050

Bordeaux.
Pitm., gals... 205,044 14,865

Rivodanella.
Pitm., gals... 45,000 4,500

Brasil.
Nails, cs... 50 1,312
Wire rds, cs... 14 171
Glassware, cs... 80 1,320
Ag. imp., pcs... 175 7,534
Tinware, cs... 15 730
Eng. imp., cs... 4 482
Car mats, cs... 0 670
Mach. y, pcs... 14 260
Pitm., gals... 77,850 9,118
Sew. mach., cs... 274 4,668
Hdw., cs... 417 8,814
Cutlery, cs... 198 4,980
Pumps, pcs... 21 1,497
Pitm., gals... 13 1,451
Lub. oil, gals... 4,024 2,325
Mf. iron, pcs... 122 5,772
Iron, cs... 225 1,972
Belting, bales... 7 2,997
Cartridges, cs... 1 56
Zinc, bbl... 1 50

Smyrna.
Pitm., gals... 164,000 16,400

Venezuela.
Hdw., cs... 25 263
Mf. iron, pcs... 6 178
Shoe nails, cs... 6 178
Pitm., gals... 9,750 1,050
Pitm., gals... 3 175
Nails, bxs... 15 100
Ag. imp., pcs... 16 200
Gun... 1 48
Safe... 1 50
Powder, lbs... 1,616 444

Hayti.
Pitm., gals... 649 71

Trieste.
Pitm., gals... 205,150 15,000

Genoa.
Pitm., gals... 153,187 9,575

British North American Colonies.
Coal, tons... 1,377 4,326
Sew. mach., cs... 10 151
Hdw., cs... 36 228
Pitm., gals... 42 210
Mf. iron, pcs... 8,700 4,495
Iron, tons... 25 700

British West Indies.
Pitm., gals... 7,662 771
Notions, cs... 1 68
Nails, kegs... 22 168
Glassware, cs... 11 180

COAL.

During the past week the trade has had few features worthy of especial note, except the brisk demand and the somewhat short supply of the Domestic sizes. A variety of reasons are suggested as accounting for the smaller tonnage brought to the seaboard. Aside from the increased difficulty of working the mines at the present season of the year, the general complaint is that there is an insufficient supply of cars. Several reasons are given for this, and among them are a heavy diversion of trade to the West, and the extensive repairs necessary after the exceedingly heavy business of the present year. It is very certain that the Western tonnage, especially the Domestic sizes, is growing with great rapidity. The low water in the rivers, and consequent high price of the Bituminous Coals, is leaving Anthracite with very little to contend against in the way of price, while its cleanliness makes it a favorite when it has once been introduced and its peculiarities mastered. The sale of base burners is good, and every possible means is used to increase it, and with them Anthracite is pretty certain to obtain a foothold. In regard to the roads being short of cars on account of the accumulations of repairs, we are not in a position to judge. They have, it is true, been spending very little money for a few years past, practicing economy at every point, and it is quite possible that this, with the other causes named, has some perceptible effect. The result is the same, however, in either case—a short supply of Coal as compared with the demand of the moment. Many dealers have suspended taking orders for the present, and are busy with those already on their books. In prices we have little to note in the way of change. The following is the circular of the Philadelphia and Reading Company. It is to take effect on Coal shipped after the 17th:

Broken.	Egg.	Stove.	Chest.
Hard White Ash Coal, \$3.70	\$3.70	\$4.05	\$3.80
Free-burning White Ash Coal, \$3.45	3.50	4.05	3.80
Schuykill Red Ash Coal, 4.00	4.40	4.90	
Shamokin, 4.40	4.50	4.00	
Lorberry Coal, 4.00	4.00	4.00	
Lykens Valley Brookside, 5.50	5.50	5.50	4.50

These are prices alongside in New York, Lump and Steamboat are quoted at \$3.75 and Pea at \$2.50 per ton. The Delaware, Lackawanna and Western quote for Hoboken: Lump and Grate, \$2.90; Egg, \$3, and Stove and Chestnut, \$3.50. Lehigh Coal is quoted at: Lump, \$4; Broken and Egg, \$3.25; Stove, \$3.35; Chestnut, \$3.10. These figures give about the range of prices, although the talk among the dealers is upward.

Vessels are scarce and freights still high. We have heard of most extravagant prices paid to Eastern ports, but do not give much credence to them. Quotations are nominal, and it is difficult to give figures which would not be misleading, although perhaps the general rates have not varied very much from last week.

OLD METALS, PAPER STOCK, &c.

There is little to note in the Old Metal market this week. The market is active and Irons are firmer than at our last writing. The Rag and Paper Stock market is firm at our quotations.

The purchasing prices offered by dealers for Old Metals are as follows:

Copper, heavy	per lb.	\$0.13	14
Copper Bottoms		10 1/2	14
Yellow Metal		10 1/2	14
Brass, heavy		10 1/2	14
Brass, light		10 1/2	14
Composition, heavy		10 1/2	14
Lead, solid		10 1/2	14
Ten Lead		10 1/2	14
Zinc		10 1/2	14
Pewter, No. 1		10 1/2	14
Pewter, No. 2		10 1/2	14
Light do.		10 1/2	14
Stove Plate		10 1/2	14
Machinery do.		10 1/2	14

The prices current for Rags, &c., are as follows:

Canvas, Linen	per D.	3 1/2 c.	4 c.
White Cotton, New	do.	3 1/2 c.	4 c.
White, No. 1	do.	3 1/2 c.	4 c.
White, No. 2	do.	3 1/2 c.	4 c.
Mixed, Woolen	do.	3 1/2 c.	4 c.
Soft, do.	do.	3 1/2 c.	4 c.
Mixed Rags	do.	3 1/2 c.	4 c.
Unwashed, do.	do.	3 1/2 c.	4 c.
Just butts	do.	3 1/2 c.	4 c.
Kentucky bagging	do.	3 1/2 c.	4 c.
Book Stock	do.	3 1/2 c.	4 c.
Newspapers	do.	3 1/2 c.	4 c.
Waste Paper and Scrap	do.	3 1/2 c.	4 c.
Kentucky Bale Rope	do.	3 1/2 c.	4 c.
Tarred Shaking	do.	3 1/2 c.	4 c.
Grass Rope	do.	3 1/2 c.	4 c.

PHILADELPHIA.

Office of The Iron Age, 220 South Fourth St. PHILADELPHIA, November 11, 1879.

Pig Iron.—The past week has been rather quiet in the Iron trade, prices irregular, and in some cases slightly lower. There has been a good deal more inquiry during the last day or two, however, and the tendency appears to be again in the direction of higher prices. Some of the leading consumers from Western cities are on the spot, making inquiries which will, no doubt, lead to business in course of a day or two. It is true that small lots have been offered at comparatively low figures, but not in sufficient quantities to materially influence the market, although others have met the price sooner than lose a regular customer. The prominent feature of the market undoubtedly is to be found in light stocks. So long as the furnaces are closely shut up, and have a demand sufficient to prevent accumulation, a decline in prices seems quite improbable, and this, we believe, is the condition of the trade to-day. Consumption shows no signs whatever of a falling off, so that there is apparently no grounds whatever for anticipating any change in values, unless it may be on the upward turn. The improved feeling to-day is based upon the above, and the further well-established fact that the low prices talked about are for lots unimportant in quantity, and in a measure outside of the general market. Buyers, within the past day or two, have also found it more difficult to place orders abroad; prices appear to be stiffening in Europe, and recent experience seems to prejudice parties in favor of American products. It must be stated, however, that one or two leading consumers who have had options of 100-ton lots for delivery in 1880, at about the lowest current figures now quoted, have given them up within the past day or two; but it is quite likely that others will be glad to take the Iron for that or an earlier delivery. Scotch Iron does not seem to make much impression here, and we hear of no sales calling for special remark. North of England Pigs, however, have been sold during the week to the extent of about 1000 tons, but under circumstances which render the transaction somewhat exceptional. The lot was bought by the importers at a very low price, and in order to save expenses was sold ex ship at about \$22 per ton, a figure which, although relatively low, is said to have left a handsome margin. There is little doubt, however, that at \$22.50 lots of a similar character could be bought to arrive. We quote the market steady at the following figures: No. 1 Foundry Iron, \$28 @ \$30; No. 2 and Gray Forge, \$27 @ \$29; Scotch Iron, \$25 @ \$29, according to brand. North of England ditto, \$22 @ \$25.

The Dauphin Furnace, near Harrisburg, was successfully blown in on the 8th, and will be run on the best grade of Foundry Iron. J. O. Richardson, of Philadelphia, has been appointed sales agent.

Muck Bars.—There is a somewhat firmer feeling, and sales have been made at about \$48, at mill, for round lots, which figure may now be considered an inside rate.

Blooms.—Are still scarce, and command full prices. The following quotations may be regarded as a fair average of the market, viz.: Sunken Scrap Blooms (246 lb), \$50 @ \$52; Northern Ore Blooms (2240 lb), \$47 @ \$49; best quality Charcoal Billets (2240 lb), for wire and steel purposes, \$75 @ \$80; Bars, \$80 @ \$82.50; Sheet Iron Blooms, cornered (246 lb), \$70 @ \$75; Cold-blast Charcoal Plate Blooms, \$70 @ \$72.50; run-out Anthracite, \$62.50 @ \$65.

Structural Iron.—The market is not quite so buoyant as on date of our last report, and in one or two instances concessions have been made to secure desirable orders. There is no scarcity of work, however, most of the mills having their capacity engaged for some time to come. A good many contracts are also likely to be given out for spring delivery, so that prospects continue quite favorable, notwithstanding a somewhat easier market for the time being. We continue our last week's quotations, although for orders of any importance, moderate concessions would no doubt be obtained. Angles, 3.6¢ @ 3.7¢; Beams, 4¢; Channels and Tees, 4.2¢.

Plate and Tank Iron.—The pressure on the mills for early delivery still continues, and prices in consequence are decidedly firmer. Manufacturers are really not in a position to accept anything of importance, and for such lots as are taken, an advance of from \$4 to \$6 per ton has to be paid. We make no change in quotations, which must be considered almost nominal, as transactions appear to be by special agreement, without strict regard to nominal rates, which are as follows: Tank, 4¢; C. No. 1, 4.1¢; C. H. No. 1 Shell, 4.5¢; Plange, 5.5¢; Solid Fire-box, 6.5¢; Best Bloom, 7¢.

Sheet Iron.—The market is a little quiet, but prices are steady and firm. Manufacturers show no disposition to make concessions, and any orders that are placed have to be at full prices. Outside parties who bought before the advance are cutting a little, as present quotations leave them a handsome margin, which they seem disposed to realize. Manufacturers, however, are still full of work, and are not inclined to enter into new engagements unless at full prices. It is difficult to quote the market accurately, but, for small lots, the following may be quoted as correct, viz.: Common Sheet, No. 20 to 23, 5.4¢ @ 5.6¢; No. 24 to 28, 5.7¢ @ 6¢; No. 16 to 24, 5.7¢ @ 5.8¢; No. 25 to 28, 5.8¢ @ 5.9¢; Refined Plates or Blue Annealed, 5.1¢ to 16, 4.4¢; 17 to 19, 4.5¢; Best Bloom, 26 to 28, 7.5¢; 16 to 24, 7.7¢; Best Bloom, 7.3¢. A Patent Planished, 11¢; B Patent Planished, 10¢; Best Blooms, Galvanized, 10 ¢ discount, second quality, 20 ¢.

Bar Iron.—There is no special change to note, although the market may be called a shade easier, without any change whatever in prices. Stocks in second hands are larger than usual, and, as a good portion was bought at low prices, merchants in some instances are selling at lower rates than manufacturers demand. There is no scarcity of business, however, and large orders for forward delivery could be obtained if parties were willing to enter them. English Bars were bought some time ago to a considerable extent, both by merchants and consumers, but it is said there is no margin for further operations at present. As regards purchases of foreign iron by consumers, we are informed by one firm who bought 1000 tons that it was to cover contracts, and the order at the time could not be placed on this side. Most of these purchases were at a cost of about 2½¢ per lb, delivered here, and we have not heard of any important purchases since the advance. Consumption is very heavy, however, and there seems to be no doubt that the mills will have all the business they can attend to at satisfactory prices. The West is reported bare of stock everywhere, and some of the leading manufacturers who are here purchasing material appear to be very confident of considerably higher prices toward spring. Meantime we quote 3¢ @ 3.2¢, the latter being the regular city prices.

Steel Rails.—The firmness noted in our last report is fully maintained, and during the week sales have been made at prices varying from \$61 to \$65, according to location of mill. No sales of special importance have been made, but there is a steady demand from all sections, which keeps the mills full of work and much pressed for early deliveries. We quote \$61 @ \$65, according to location of mill, the lower rate being now quite exceptional.

Iron Rails.—Prices are again firmer, and \$51 @ \$52, at mill, for heavy sections is about as low as manufacturers would care to consider. There is so much work on hand, however, that it is difficult to place orders of any amount, even at full rates, as there is a general impression that prices will be higher toward spring. Foreign Rails can be bought, delivered at tide, for something less than American are quoted at mill, but we have not heard of much business being done, owing in some measure to the difficulty of financing for them in a satisfactory manner. Terms are usually cash against bill of lading, which but few buyers are in a position to meet. The market may be called strong at \$51 @ \$52, at mill, for heavy sections; \$54 @ \$56 for light do., and \$50 @ \$52 at tide for Foreign Rails.

Steel Blooms.—There is a good deal of inquiry, and sales of several thousand tons are reported at about \$46, though higher prices are now asked, say \$47 @ \$48.

Old Rails.—The market shows no change since date of our last report, although advices from other points indicate increasing firmness. Sales in a small way have been made at \$32 for spot lots, while large parcels have been declined at \$31.50. The demand seems to have fallen off remarkably, but as offerings are not heavy or pressing prices are nominally unchanged, say \$31.50 @ \$32.00.

Scrap Iron.—The market is steady, with sales of choice lots at full outside figures. One lot of Wrought, 150 tons, sold at \$34.25, ex ship, and \$34 @ \$36 gives a fair idea of the market. Cast sells at \$22 @ \$24.

Nails.—Are unchanged, in light supply, and steady at \$3.60.

PITTSBURGH.

Office of The Iron Age, 77 Fourth Avenue, Pittsburgh, Pa., Nov. 11, 1879.

There has been a very fair degree of activity in general business during the past week, although there is not so much of a rush as a few weeks ago. The demand for nearly all the leading articles of Pittsburgh manufacture is better than usual at this season of the year. A resumption of river

navigation would be of great advantage to general business, the coal interest in particular, which has grown wonderfully within the past few years, and, moreover, it would relieve our overcrowded railroads. The indications are favorable for a rise, as the weather has been rainy for some days past, and it is to be hoped that we will not have to wait much longer. It would be a calamity if the river should happen to freeze over before there was a rise, as many of the down-river cities and towns are nearly out of coal, and in addition to famine prices, which would place it beyond the reach of the poorer classes, manufacturing establishments would be obliged to suspend, depriving their workpeople of employment.

Pig Iron.—The market has been quite active the past week, sales of some 15,000 tons having been reported, and, as might be expected, a much firmer and more confident feeling has been established. The hull which prevailed for some time naturally created a feeling of weakness, and then there was so much said and written about the importation of foreign irons that the trade generally became a little apprehensive. One reason of the increased confidence on the part of sellers lies in the fact that it has been demonstrated that a considerable proportion of the imported iron won't do for this country. Several tests of it have been made here, some of which have turned out very unsatisfactory, and the kind in question could not be sold here at any price. It is said that the puddlers object to working foreign pig. Of the 10,000 tons of Anthracite Iron reported sold, some 8000 tons were purchased for delivery from January to April at strong prices, indicating that there is confidence on the part of consumers in the future of the market. Included in the latter were 3500 tons Extra Forge at \$30, cash; 1000 at \$31, 4 mos.; 2000 Extra Forge Red short, \$31, cash; 1000 of the same at \$32, 5 mos.; 500 Neutral at \$31, 5 mos.; 500 at \$30.50, 4 mos.; 500 White and Mottled at \$28, cash; 150 at \$28.75, cash; 900 Gray Forge, in lots, at \$29, cash, to \$30, 4 mos. Bituminous Coal Smelted from Lake ores: 25 tons No. 1 Foundry, \$35, cash; 600 do. Gray Forge Red Short at \$32, cash; 100 do. do., \$33, cash. Coke Irons from native ores: 400 tons Close Gray at \$30, 4 mos.; 250 do. Gray Forge at \$30, cash. Bessemer Iron continues very quiet, nothing doing except in a small way for foundry use. It is probable, however, that some large contracts will be made before long, as some of the large buyers will, it is expected, be in the market within the next few weeks. In the absence of sales, we quote No. 1 at \$35, 4 mos. Scarcely anything is doing in Charcoal Iron.

Manufactured Iron.—The situation has not varied materially since the date of our last report. While orders are falling off somewhat, business is much better than ordinarily at this particular time, and the mills, almost without an exception, are still oversold. Some of them have orders booked sufficient to absorb their entire product during the remainder of the year. It is worthy of mention that our manufacturers have nearly all set themselves against making contracts for future delivery, experience having demonstrated that it is bad policy to do so. If prices happen to go higher they are held strictly to the contract and made to deliver every pound; while, on the other hand, if there is a turn in the opposite direction, all kinds of squirming is resorted to on the part of the buyer to obtain a release. Prices are firm, but unchanged; and it is still difficult to place an order for immediate delivery. Merchant Bars, 3¢, 60 days, 2 ¢ off for cash; Sheet Iron, 4.5¢, for No. 24; Plates, 3.8¢, some mills declining to sell under 4¢; Skelp Iron, 3.5¢ @ 3.6¢, for December. The mills are all full of orders for immediate delivery. Hoop Iron, 3.9¢ @ 4¢.

Muck Bar.—Continues in light supply, with considerable inquiry, as most of the mills are able to absorb their entire product, and prices are firm, with sales at \$52, cash. We quote at \$50 @ \$52, according to quality.

Cinder.—There is an increasing inquiry, and prices are firm, with an advancing tendency. We hear of a sale of 2000 tons at \$3.25, cash.

Ores.—The demand, especially for standard qualities, continues in excess of the supply, and prices are firm and higher. It is very evident that all good qualities will be in scant supply until after the opening of navigation next May.

Nails.—At a meeting of manufacturers on Saturday last, prices were advanced 25¢ per keg, and we now quote at \$3.65, 60 days, 2 ¢ off for cash, and an abatement of 10¢ per keg on lots of 200 kegs and upward. Wheeling made a similar advance last Friday. Business is moderately active. This is ordinarily the dull time in the Nail trade, and no improvement can reasonably be looked for until the spring trade opens, about the middle of January.

Horse and Mule Shoes.—There is a moderate business at former prices. We quote 100-keg lots, \$4 and \$5, cash; larger lots, special rates.

Rails.—There have been no late sales of Steel Rails, which are quoted nominally at \$60 @ \$62 per ton, cash, at mills, deliverable next year. Steel Blooms \$50, cash, at mill. Old Iron Rails.—We can report a sale of 300 tons at \$35, cash, or about \$2 per ton below the market, as \$37, there is reason to believe, could have been obtained for the same lot of Rails.

Wrought Iron Pipe.—Continues in active demand and prices are firm, but unchanged. The discount on Steam and Gas Pipe is 2 ¢ on lots of 10,000 feet and upward. Discount on Boiler Tubes, 10 ¢; Oil Well Casing, 8¢, net; Tubing, 25¢.

Railway Spikes.—There is a continued steady demand, but no change in prices—3¼¢ for large lots and 3½¢ in a jobbing way.

Steel.—There is no abatement in the demand for Merchant Steel, and prices are firm, but unchanged. Owing to its cheapness it continues to take the place of iron for many uses, hence the consumption is steadily increasing.

Scrap.—There is a very fair business and prices are firmer, if anything, but un-

changed. We repeat former quotations: Old Car Wheels, per gross ton, \$33 @ \$35; Old Car Metal, gross, \$26 @ \$28; Cast Borings, gross, \$16 @ \$17; No. 1 Wrought Scrap, net, \$40 @ \$42; Boiler Scrap, net, \$40 @ \$42; Old Car Axles, net, \$45; do. Car Springs, net, \$35; Wrought Turnings, net, \$24 @ \$25.

Window Glass.—At no time for many years, if ever, in the history of the business in Pittsburgh, has the stock of Window Glass been so reduced as at present. The factories have been working steadily since the 1st of September, but makers have been unable to pile up any. The warehouses are all empty, and manufacturers cannot begin to supply the demand. In the present condition of affairs small orders are much more acceptable to makers than large ones. Indeed, it is simply impossible to place large orders for immediate delivery, as there is a very general disinclination to sell ahead at a stipulated price. The indications are that there will be an unusually large spring trade, and manufacturers would like to pile up for a time, so as to be in readiness for the same, but the demand is still sufficient to absorb their production. Prices are firm and still tending upward. Discounts may be quoted at 60 and 20 ¢ to 70 ¢ for car-load lots.

Coke.—There is no falling off in the demand, nor is it likely that there will be for some time to come, as the consumption is steadily increasing. Prices are firm and higher. We quote at \$1.50 @ \$1.60 per ton, delivered on cars at ovens, and \$1.75 @ \$1.85 in smaller lots.

White Lead.—Continues firm at the recent advance, in sympathy with the enhanced cost of production, and still further rise soon is not improbable, as linseed oil has gone still higher. We continue to quote at 8½¢ per lb. for ton lots, and 9¢ in a small way.

Coal.—The situation for our Coal trade is becoming serious. The stock of Pittsburgh Coal at both Cincinnati and Louisville is almost exhausted, and at Memphis and New Orleans, and other points South, they are becoming apprehensive of a Coal famine. Shipments are being made by rail to both Cincinnati and Louisville, but the cost is so great that it is very expensive by the time it gets there. The freight by rail to Cincinnati is said to be somewhere from 16¢ to 18¢ per bushel, whereas shipments have been made by river to the same point as low as 1¢. If there is not a rise soon, rolling mills, foundries and other large consumers at the points named will have to curtail operations, if not shut down entirely.

Petroleum.—Continues in a very unsatisfactory condition. Legitimate business, in both Crude and Refined, promises to be larger this year than ever before, but prices are very low. The production is reported as having fallen off somewhat during October as compared with September, but it is still large—estimated at about 60,000 bbls. per day. The visible supply is also heavy. It was thought a few weeks ago that there might be a "spurt" before the close of the year, the result of speculation; but speculators, it seems, have no confidence in any immediate improvement in prices. There is too much of it to look for any advance during the remainder of this year.

CHATTANOOGA.

Office of The Iron Age, Market and 8th Sts., CHATTANOOGA, NOV. 10, 1879.

The business outlook is in favor of a heavy, though rather quiet, fall trade in manufactured articles. Those who predicted a sharp fall in consequence of the rush upward in September, have not seen their predictions verified. There has been fluctuation since prices began settling into normal rates, but no harmful decline has happened in any line of iron merchandise. The weather for the week was cold and frosty, decidedly wintry at first, and closes warm and summer-like.

Pig Iron.—Business is fairly good, about the usual amounts being handled. We quote Coke Mill at \$1 @ \$2 lower. The tone of the market is steady and healthy. We continue last week's prices. Coke Irons—No. 1 Foundry, \$28 @ \$33; No. 2, \$25 @ \$28; Gray Forge, \$28 @ \$30; White and Mottled, \$25. Hot-blast Charcoal—No. 1 Foundry, \$28 @ \$33; No. 2 ditto, \$25 @ \$28; Gray Forge, \$27 @ \$28. Cold-blast Charcoal—Car Wheel Metal, \$30 @ \$40.

Muck Bar.—None in market. Old Rails and Wrought Scrap scarce and strong. Old Rails, \$32 @ \$35; Wrought Scrap, \$23 @ \$33; Old Car Wheels, \$25.

Ores.—Have advanced. Brown Hematite, 50 to 56 ¢; per ton, \$2 @ \$2.75. Red Fossiferous, \$2 @ \$2.25, on cars in the city or on the wharf from flat boats.

Nails.—Are strong at \$3.75. The demand holds up and promises to continue at least as full as now. If it does prices will be well maintained during the winter season.

Manufactured Iron.—Spikes are slightly off last week's rate. We reduce them 35¢ per 100. We quote Bars at \$3.50; Railroad Spikes, \$3.40; Track Bolts, \$4.75; Treble Bolts, \$5.50.

Coke.—We continue to quote Foundry at 10¢ per bushel; Furnace, \$3.50 per ton, an advance of 50¢.

Coal.—Is in fair supply. The demand is brisk. We advance prices 25¢ per ton. Run of mine to manufacturers at \$1.50 @ \$2 per ton. Household Lump, delivered, 10¢ @ 14¢.

Iron Rails.—We quote at \$43 @ \$50, and the market bare.

Steel Rails.—We quote at \$60 at mill, and no supply for transient buyers.

BOSTON.

NOVEMBER 13.—The market continues quiet, and in the absence of much demand, prices have a drooping tendency. There is a general feeling of confidence, however, among holders; and if general business continues as brisk and satisfactory as at present, there is little doubt that this market will recover all of its former activity and firmness. Our quotations continue rather nominal: We quote shipping-port prices of American Pig Iron at \$29 @ \$30 for No. 1

X; \$28 @ \$29 for No. 2 X; and \$27 @ \$28 for Gray Forge. We quote spot lots of Pig Iron at \$31 @ \$32 for No. 1 X; and \$30 @ \$31 for No. 2 X. Scotch Pig moves slowly, and stocks of foreign iron have been still further increased this week by receipts of some 1500 tons Scotch and English pig per steamer. There are also several more large parcels on the way. English Iron meets with very little favor here. We quote Scotch Iron dull and nominal at \$27 @ \$28 for Eglinton; \$25 @ \$29 for Gartsherrie and \$29 @ \$30 for Coltness. Old Rails continue sluggish, but holders at this point are as firm as ever at \$36, and are confident that the market will soon stiffen up again. Manufactured iron is without material change, and the bar mills are all busy and in a position to refuse any orders on a basis of less than 3¢. The store price is 3¢ @ 3¼¢, according to size of parcel. Plate and sheet iron are less active, but prices show no material change. Boiler tubes are strong at 10 off list prices from mill, but offers of floating parcels in stock at 15 off give the market an appearance of weakness. Other Metals are sluggish just at the moment, and the absence of demand causes a drooping tendency. Copper is stagnant, and large parcels have been offered at 21¢, without buyers. We quote store lots 22¢ @ 23¢. Manufactures are without material change, and we continue to quote: Copper Sheathing at 28¢; Braziers at 30¢; Bolts, 30¢; Bottoms, 33¢; American Yellow Metal Sheathing, 17¢ @ 18¢; Yellow Metal Bolts, 22¢; and English do., 13¢ in bond. Antimony dull and easier, at 10¢ @ 20¢. Lead has sold at 5¢ for large lots of Pig, and the Boston store price is 5¼¢ @ 5½¢. Manufactures are unchanged, quoting Lead Pipe, 7¢; Tin-Lined Pipe, 15¢; Bar Lead, 7½¢; Sheet Lead, 7½¢; Block Tin Pipe, 40¢; all of these are subject to the usual trade or 10 ¢ discount. Spelter is off a little, and we now quote 6¼¢ @ 6½¢ for car-load lots, and 6½¢ @ 6¾¢ from store. Sheet Zinc unchanged, quoting the Boston store price 8½¢ @ 9¢. Tin has continued quiet, and Straits are nominal at 24¢; Banca at \$26 @ 27¢; and English L. & F. at 22½¢ @ 23¢. Tin Plates continue in good inquiry at unchanged prices, quoting \$8.25 @ \$8.50 for Charcoal I. C.; \$7.50 @ \$8 for Coke I. C.; and Charcoal Terns at \$9.75 for M. F., and \$7.75 for ordinary do.—Commercial Bulletin.

ST. LOUIS.

St. Louis, Mo., Nov. 8, 1879.

Continued quotations of last week. Notwithstanding the slight break in the prices of iron, there is a strong undercurrent of opinion prevailing that the highest prices have not yet been reached. The increased cost of making, it is held, will average fully \$10 per ton, which will make an average cost of fully \$27 per ton for next year. The enhanced cost to makers does not mean cheap iron to consumers, and those who view the situation as it is, do not expect anything but increased prices. Business is very brisk for the season, and buyers are taking hold quite courageously, both for present and future delivery.

CHARCOAL HOT BLAST.	
Missouri.....	\$15.00 @
Southern.....	34.00 @
Hanging Rock.....	None offering.
COKE AND COAL.	
Missouri.....	None offering.
Southern, No. 1.....	33.00 @ 33.00
Ohio River, No. 1.....	33.00 @ 33.00
Jackson County, No. 1.....	33.00 @ 33.00
Hocking Valley, No. 1.....	33.00 @ 33.00
No. 2 and Mill ½¢ @ ¾¢ per ton less.	
COLD BLAST.	
Missouri.....	35.00 @ 37.00
Southern.....	36.00 @ 40.00
Ohio.....	40.00 @ 42.00
IRON ORE.	
Iron Mountain.....	7.50 @ 8.00
Southwest.....	7.00 @ 7.50
Ore for flux.....	6.00 @

CINCINNATI.

Messrs. E. L. HARPER & Co., under date of Nov. 10, write as follows: There has been a very good demand for most grades during the week, and sales foot up a satisfactory figure. Charcoal Foundry Iron appears to be an exception, the transaction in this grade being smaller in amount comparatively. Probably this is due largely to some unsettling in prices by dealers who have been quoting the market as low as \$38, and buyers consequently are inclined to hold off until matters take a definite shape. We cannot learn of any sales of prime brands as low as this figure, but to keep quotations strictly within the scope of the market we widen the range on this grade. Car Wheels and Malleable Irons are in good request, and are strong with an upward tendency. Old Rails are virtually off the market, only occasional lots being unearthed by diligent hunting. The movement in blooms is small because of the exceedingly limited supply available. Agents report a further advance on Friday last of 25¢ per keg in nails.

HOT-BLAST FOUNDRY.	
Hanging Rock C. C., No. 1.....	\$38.00 @ 42.00
C. C., No. 2.....	36.00 @ 39.00
Southern C. C., No. 2.....	36.00 @ 39.00
No. 2.....	36.00 @ 39.00
Strong Neutral Coke.....	38.00 @ 39.00
No. 2.....	37.00 @ 38.00
Fannie, American Scotch.....	37.00 @ 38.00
Hocking Valley 8, C.....	37.00 @ 38.00
No. 2.....	35.00 @ 36.00
Hanging Rock, 8, C.....	35.00 @ 36.00
No. 2.....	33.00 @ 34.00
Open Silver Gray.....	32.00 @ 34.00

FORGE IRONS.	
Hanging Rock, C. C. Gray Forge.....	35.00 @ 36.00
Coke.....	35.00 @ 36.00
Cold-Short, Gray Forge.....	33.00 @ 35.00

CAR WHEELS AND MALLEABLE.	
Hanging Rock.....	47.00 @ 50.00
Southern.....	43.00 @ 47.00
Lake Superior.....	45.00 @ 48.00
Salisbury.....	50.00 @ 55.00

BALTIMORE.

W. N. WYETH, Iron and Steel Merchant, 46 and 48 South Charles street, Baltimore, report us the following under date of Nov. 10: Trade rules about the same as last reported, and prices are fully maintained at quotation figures:

Ref. Bar Iron, 1 to 6 by ¼ to 1..... 3½¢ @ 3½¢
 " " 1 to 4 by ¼ to 1..... 3½¢ @ 3½¢
 " " ½ to 1, Round..... 3½¢ @ 3½¢
 and Square..... 3½¢ @ 3½¢
 Hoop Iron, 1½ wide and upward..... 3½¢ @ 3½¢
 Band Iron, from 1½ to 4 in. wide..... 3½¢ @ 3½¢
 Horse-shoe Iron..... 3½¢ @ 3½¢
 Norway Nail Rods..... 5 ¢ @ 5 ¢

Black Diamond Cast Steel.....	12½¢ @ 13 ¢
Machinery Steel.....	7 ¢ @ 8 ¢
Cast Spring Steel.....	6 ¢ @ 6½¢
Homogeneous Steel Plate.....	6½¢ @ 7 ¢
Common Horse Nails.....	10 ¢ @ 14 ¢
R. R. Spikes, 5½x9-16.....	3½¢ @ 3½¢
Perkins' Horse shoes, ½ keg of 100 lbs.....	5.12½
" Mule shoes.....	5.12½
Putnam Horse Nails.....	10 ¢ @ 8 ¢
Globe Horse Nails.....	20 ¢ @ 21 ¢
Less list discount to the trade	21 ¢ @ 23 ¢

R. C. HOFFMAN & Co., Iron and Commission Merchants, report the Pig Iron market as follows under date of Nov. 10: We have no change to report in the Iron market, and repeat last quotations, viz.:

Baltimore Charcoal Wheel Iron.....	\$38.00 @ 40.00
Virginia.....	30.00 @ 41.00
Anthracite No. 1.....	30.00 @ 31.00
No. 2.....	29.00 @ 30.00
No. 3.....	28.00 @ 29.00
Mottled and White.....	25.00 @ 26.00
Charcoal, C. B. Blooms.....	65.00 @ 70.00
Billets.....	70.00 @ 75.00
Refined Blooms.....	55.00 @ 60.00

LOUISVILLE.

W. B. BELKNAP & Co., Iron and Steel merchants, Nos. 113 and 115 West Main street, under date of Nov. 10, write as follows: While trade during the past week has ruled active, there is, notwithstanding, an easier feeling in iron. The sheet mills have at last apparently overtaken their orders, and stove pipe is in the buyer's favor. Hoop and Band share the same feeling. Bar mills, while willing to sell the product at present prices for prompt delivery, do not seem anxious to book any large orders for the future. The importation of foreign bars and sheets into Southern ports while navigation on our rivers is closed and the rail freights consequently well up, is undoubtedly telling upon the markets hereabout. The advance of 25¢ on nails on the 7th, by the association at Wheeling, was not unexpected, but it remains to be seen whether the makers will be able to maintain it until the spring demand sets in.

RICHMOND.

Mr. ASA SNYDER, Iron Merchant and Furnace Agent, writes as follows under date of Nov. 10: This market is in sympathy with the Northern markets, and has weakened some since last report. I quote as below:

American Scotch Pig Iron.....	@
Anthracite, No. 1.....	28.00 @ 29.00
No. 2.....	28.00 @ 29.00
No. 3.....	27.50 @ 28.50
Mottled and White.....	25.00 @ 26.00
No. 1.....	27.00 @ 28.00
No. 2.....	26.00 @ 27.00
Va. Warm-blast Charcoal, Cold-short	29.00 @ 33.00
Cold-blast.....	30.00 @ 41.00
Old Rails.....	29.00 @ 30.00
Wrought Scrap No. 1.....	27.00 @ 28.00
Machinery " No. 1.....	23.00 @ 24.00
Richmond Refined Bar Iron, Stand'd.	3½¢ @
Horse Shoes, Tredegar.....	3.75 @ 4.00
Mule.....	4.75 @
Old Dominion Nails, (standard size).....	4.75 @
Freights to New York, \$1.00 for 2500 lbs. by rail.	

Our English Letter.

Review of the British Iron, Steel, Metal and Hardware Trades.

(From our Regular Correspondent.)

LONDON, ENG., Oct. 27, 1879.

THE SITUATION.

of the metallurgical industries of Great Britain is, in many respects, stronger and better, but the process of readjustment which is going on has rendered the relations of vendors and producers so complicated that the general state of affairs cannot honestly be said to be entirely satisfactory. In some of my most recent letters I have more than once dwelt on the subject, and have felt compelled to avoid the ultra-sanguine expressions in which many persons in the trade and journalists have indulged. I see no reason whatever at present for altering my opinion. It is beyond question that some branches of the iron and hardware industries of this country are now in a better position than they were a couple of months ago. The change has been rendered unavoidable by the course of business in the United States, in which we have found a customer believed to have been wholly lost, and have likewise been to a great extent deprived of a competitor. The alteration, nevertheless, has only had a certain effect, and has not produced, nor will it produce, that renewed inflation which some of the more sanguine persons among us seem to expect will follow as a matter of course. The truth of this assertion has already become plainly apparent in Scotland, where, within a very brief period, speculators and others, with unprecedented folly and lack of ordinary foresight, built up airy castles which the keen logic of events has already partially demolished. Starting upon the exaggerated hypothesis that the receipt of a certain number of orders from America for our pig iron meant that your market was capable of taking almost any quantity of it, the shipments from this side were enlarged to an extent scarcely ever before known—certainly not since 1860—and prices went up in an aerial manner which seemed to be token that there would be no early limit to the traffic or its profits. Experienced traders, however, knew better. They inferred that the large demand first experienced was destined to fall off so soon as a certain balance of underproduction on your part had been supplied by us, and they put their observations and inferences to good account by quickly "unloading" their warrant holdings during the brief period of fervid excitement, in which manner they got rid of responsibility and made handsome profits. The speculators soon found themselves at sea, and having neither experience nor accurate information to guide them, rushed in a body to sell, and have no doubt been largely mulcted by the "bears" of the Glasgow market. The probability is that now, or within a very short period, the original holders of the warrants will be again in possession of their paper, which being accomplished, we may not unreasonably look for a calmer state of affairs and a more regular tone in the market. The outside dabblers will, at all events, fight shy for a

time. Once bitten twice shy, saith the proverb, which will in this case be literally translated by the victims. Current information from your side (mainly through the cablegrams to the *Ironmonger*), is certainly not calculated to promote any further inflation of the Scotch pig iron market—a circumstance which will vastly aid the legitimate recovery of the general metallurgical industries of Great Britain. Scotland being depressed, Cleveland and the other smelting districts naturally follow suit; hence there arises the advantage that the grater part of the business now being done is on account of actual consumption. In that circumstance there is the germ of good things to come. Should no additional disturbing elements arise, I think we may venture to anticipate a gradual process of emancipation from the unwelcome and profitless dullness which has so long held us in bondage. In this connection I cannot avoid cordially endorsing the gist of some remarks which I observe in one of the weekly trade journals, strongly condemnatory of the rash, ill-considered, and inaccurate statements which are being sent about from "Central England" (so the *Iron and Coal Trades Review* states) to the London and other daily papers. These examples of "lineage" are marvelous specimens of a supposititious state of things—but they have the slight drawback of being unsupported by facts. They assert that the iron merchants and other traders of a certain Staffordshire town are "pulled out of the place with orders," and would lead the uninitiated to infer that the revival of trade had already assumed astounding and truly magnificent proportions. That such is not in reality the case I need not inform you, but I think it necessary to warn you against such narratives, inasmuch as I notice that very similar paragraphs are being cabled across to your general newspapers, probably by the Associated Press Agencies here. "The truth, the whole truth, and nothing but the truth" is that there is a change for the better in this country, but it is as yet in leading-strings. It halts, and progresses very lamely; besides which there is so large a number of persons trying to suffocate it by one or other means, that it is quite open to doubt whether the bantling will ever attain the period of puberty. Already one reads of preparations for enlarging the production on so large a scale that the demand will need to be doubled, or even tripled, to furnish employment to all who are seeking orders. This is no doubt very natural on the part of everybody individually concerned, but no dispassionate observer can fail to look at the matter from its aggregate presentment and not in mere detail. We all hope and trust that there will be ample employment for everybody, but in the teeth of the depression at home I, for one, cannot see how such a volume of work can possibly accrue. My hopes certainly belie my fears. *Nous verrons!*

THE ADVANCES IN HARDWARES
which have been declared in several quarters are viewed with marked dissatisfaction by merchants and retailers, the majority of whom are not disposed to accept the explanations and excuses put forward by the manufacturers. Apart from the rises which have had their origin in the remarkable increase in the prices of copper, tin and spelter, there have been many advances in general hardware, and for these the retail traders have there is but slight warranty. A "Wolverhampton Merchant" gives the feeling expression in a published letter, in which he alleges that the "easily-excited" manufacturers of hardware in that district have made the rise of 5/10 in manufactured unworked iron the excuse for declaring advances not only sufficient to cover increased cost, but to place obstacles in the way of and curtail the very small demand for manufactured goods. Upon three leading articles, he says, the proposed alterations not only cover the extra 10/ per ton for material, but give an extra profit of 30/50/ and 60/ upon every ton of goods. This course he, not unnaturally, terms an "extremely injudicious and short-sighted policy," of which there seems to be little or no doubt. The upward changes in prices made known within the past few days include the following:—Ewbank's nails, 5 to 10%; vulcanized rubber goods, 25%; general brass foundry, 2 1/2%; composite piping, 2 1/2 to 5%; American hardware, 5 to 60%; Stewarts' (Glasgow) wrought-iron gas tubes, 2 1/2%; boiler tubes, 5%; steam and galvanized tubes, 5%; rain-water pipes, 60/ to 10%; stove and range metal, 6d. per cwt.; oils and seeds, 5 to 15%; Baldwin's sheet quotations withdrawn; tin plates, 1/ to 2/ per box; fencing wire, 10/ per ton; all Belgian iron and steel, 10 to 15/ per ton; quicksilver, 30 to 40/; hematite, 2/6 to 5/ per ton; steel rails, 5/ per ton; Welsh iron rails, 2/6 to 5/ per ton; nickel and German silver, 3d. per lb.; tinned and galvanized hardware, 5% discount; trays and waiters, 5 to 10%; malleable nails, 1/ and cast, 6d. per cwt.; shoe rivets, 5%, and brass rivets, 10%; some stock and plate locks, 5 and 10%. There is a vague rumor that Staffordshire marked bars are not unlikely to go up by 10/ per ton to £8 on November 1.

SCOTCH PIG IRON
has been in an irregular condition during the whole of the week which has elapsed since my last letter to *The Iron Age* was written. The warrant market opened very flat and there was quite a rush to sell, consequent upon the cable advices published on the Saturday, and the weakness held good throughout the week until Friday (Thursday being one of the Scottish holidays), when a slight recovery was perceptible. Advices subsequently received will in all probability affect the market adversely, and tend to retard that recovery which might otherwise accrue from our observation of the very large shipments. According to John E. Swan & Bros. there are now 346,592 tons in Connal's stores (an increase of 8430 tons in the week) as compared with 193,733 tons on the same date of 1878. The shipments have been largely to foreign destinations, the figures up to date this year being 237,549 tons foreignwise, and 161,544 tons coastwise, making a total of 449,093 tons, against 327,442 tons in the corresponding period of 1878, an increase this year of 121,651 tons. The fall in Scotch prices has naturally tended to minimize the importations into that country of Cleveland pig, the

statistics under that head showing a falling off to date of 29,378 tons this year. There has been an increase of the production in Scotland, where there are 94 furnaces (55 new and 39 old style) going, as compared with 80 last week and 90 at this date a year ago. For ballast pig, Messrs. Swan Bros. still quote 50/ alongside ship in the Forth or Clyde. The unfavorable intelligence from your side, already alluded to, has favored a reduction in freights from the Clyde to your ports, average rates being now 11/ to 13/ per ton to your Atlantic ports. Writing from Glasgow on October 24, James Watson & Co. reported as under: "The Scotch pig iron market has been irregular this week, at lower prices, with a moderate business doing. On Monday the opening price was 56/6, quickly receding to 53/10 1/2 per ton, and on Tuesday the market opened weak with transactions down to 52/9, improving, however, in the afternoon and closing strong at 55/3 per ton. On Wednesday morning the advance continued to 56/3, rapidly receding to 54/3, afterward rallying to 55/ and closing at 54/9 per ton. Yesterday being a close holiday there was no market, but to-day the tone was firmer, with a good business from 54/9 to 55/6, then back to 54/10 1/2, closing with buyers at 55/ and sellers at 55/3 per ton. The shipments last week were 23,323 tons, as compared with 9994 tons for the corresponding week of 1878." We quote:

	No.	No.
G. M. B., at Glasgow	58/	54/
Gartsherrie	58/	54/
Colmace	58/	54/
Summerlee	58/	54/
Langloan	58/	54/
Carnbroe	58/	54/
Calder, at Port Dundas	58/	54/
Glenarmock, at Ardrossan	58/	54/
Eglinton	58/	54/
Dalmellington	58/	54/
Shotts at Leith	58/	54/

The shipments last week of manufactured iron, &c., from the Clyde reached the value of over £32,000.

IN CLEVELAND
the following are average current figures for general makers' brands of pig iron:

G. M. B.	
No. 1 Foundry	47/6 Mottled
3 "	47/6 White
3 "	47/6 Kedge
4 "	47/6 Cinder
4 Forge	47/6

All net cash, delivered f. o. b. at makers' wharves in the Tees.

That there is some irregularity in this district, however, is proven by the fact that another good house quotes No. 1 at 45/; No. 2, 43/; No. 3, 40/6; No. 4 Foundry, 40/; and No. 4 Forge at 40/6.

THE CYFARTHFA WORKS
were restarted to-day, after a very long period of enforced idleness. The event is a somewhat significant one, not merely *per se*, but in its representative sense. When Cyfarthfa was closed the abnormal years of excitement and profits had run their cycle. The place was stopped. Now the works are again opened and the machinery is being once more moved; hence it is inferred that we are on the eve of other and further great achievements. This may or may not be the case, but the event is hailed with great satisfaction throughout South Wales and Monmouthshire, particularly by the inhabitants of the Merthyr-Tydfil locality. Cyfarthfa is just outside that town, the tradesmen of which are appreciably affected in one direction or the other by the employment or otherwise of 4000 to 10,000 workpeople. Even the smallest of these figures is not likely to be reached as yet. Probably nearly 1000 men will suffice for present requirements.

THE WAGES "BOGEY,"
which appears to have shown its hideous proportions in the United States as one of the earliest outcomes of the improvement in the state of trade, is again rearing its head among us. In many parts of the country there are strikes and rumors of strikes, although up to the time of writing there has been no very notable dispute. The coal miners' trades unions, however, are exceedingly active in their efforts to get up a really big dispute of some kind or other, and should there be any additional spurt in the iron trade it is long odds in favor of their success. They are already giving notice for higher rates of payment, notwithstanding the circumstance that there has not been the slightest move in the price of fuel up to now. I observe a cablegram to-day announcing a general rise in coal quotations and colliers' wages on your side, but I do not suppose that that course will be likely to be emulated here. In some branches of the North of England iron trade the masters and men have arrived at a compromise by mutually agreeing to respect a sliding-scale arrangement, under which the wages for certain classes of labor will be paid *pro rata* with the selling price of iron. That is a fair and equitable rule, and, properly worked, it ought to prevent a recurrence of those miserable strikes and lockouts which have tended so much to diminish our prosperity and to bring into discredit our manufacturing prestige. The blast furnacemen of Cleveland, under this scale, have to-day received an advance of 5 per cent. On the Tees the iron shipbuilders are on strike against a proposed reduction. At the Consett Works, Durham, a strike has taken place to-day, whereby all the plate mills are stopped, against an attempted reduction of the wages of the "contractors' assistants" by 7 1/2 per cent. On the other hand, a section of Earl Granville's ironworkers at Hanley, Staffordshire, who had been on strike for two months against a reduction of 6d. per ton, have to-day been allowed to resume operations at the old rates, owing to the improved state of trade and better prices.

THE RAILWAY COMPANIES,
in some instances, at last appear to be recognizing the fact that they have it in their power to do a great deal of good or almost infinite harm to the traders and trades of the districts they serve. I have more than once alluded to the disadvantageous position in which the manufacturers of the Midlands are placed as compared with their fellows on or near the coast, and I have mentioned that the Sheffield and other firms have repeatedly petitioned the railroad magnates to relieve them from a portion of the impost. I now hear of two cases where slight relief is notified—about 2/6 a ton on hard-

wares from Staffordshire to London, and certain manufactures from Birmingham to the metropolis. A more important change is that made by the Midland Railway Company between Sheffield and London, in respect of Bessemer and Siemens steel in bars and bundles, which are lowered from 26/ to 13/4 per ton, station to station rates, or 15/10 per ton if delivered in 2-ton lots. The distance is about 160 miles. If this alteration covers rails, the change will vastly improve the chances of some of the Sheffield mills in competition for home, India and Australia.

MR. EDWARD WILLIAMS,
of Middlesboro', President of the Iron and Steel Institute, and a very well-known gentleman in the trade, evidently entertains the opinion that trade is about to take a new departure and to scale hitherto unattempted heights, if one may judge by the piece of enterprise to which he is commonly reported to have committed himself. Mr. Williams has purchased the Quinhorpe Iron Works, near Middlesboro', lately the property of Lloyd & Co. (in liquidation). There are six blast furnaces and other good, modern appliances for all sorts of iron-making processes. It is understood that the price paid is £70,000, and it is supposed that about £30,000 more may advantageously be expended upon the plant. Even then Mr. Williams will have made a good bargain, and with brisk trade should rapidly "make a pile" out of the place.

FROM SHEFFIELD
current public and private intelligence is decidedly more cheerful. The large works at the east end of the town are much busier than they have been for more than two years past, and the same observation holds good with respect to the greater portion of the iron and coal district which lies all around Sheffield on all sides save the west. At Rotherham the Newfield Iron Works are stated to have in course of execution an American order for 1000 to 1500 tons of bars. The Parkgate Company and George Dawes' Elsecar Works are also much more active. John Brown & Company are stated to be so well supplied with orders that they have in contemplation the immediate reopening of their branch tire, &c., works at Kilnhurst, which have been closed over four years. This fact accounts, I suppose, for the somewhat sudden firmness of the company's stock and shares. Charles Cammell & Company are well engaged at their Cyclope Works on rails, wire, plates, &c.; at their Penistone branch on rails, blooms and forgings; and at Grimsthorpe on Siemens steel and its applications. Messrs. Firth & Sons are briske in their heavy gun departments on cast steel tubes for ordnance, and also have much better filled order sheets from the States, Canada and France. I believe Messrs. Firth's steel is some distance ahead of all competitors in San Francisco, and that it is also becoming very well known in Australia. Vickers & Company are well engaged on crossings, and are devoting more attention than before to Siemens steel, of which they are almost, if not quite, the largest English producers already. All the rail mills are fully engaged, and I am told that none will now book anything for delivery this side of April 1st next under 25/ or 25.5/ per ton. With hematite pigs at anything like the present figures, it would, indeed, be little short of suicide to do so. Joseph Rodgers & Sons, Harrison Bros. & Howson, Brooks & Crookes, Geo. Wostenholmes and one or two of the merchant houses are very fully supplied with United States orders; indeed, the houses specified are becoming very busy, and are affording their workmen ample employment. Some government contracts for cutlery have been on offer, but the Sheffield firms as a rule have held aloof from them. As a matter of fact, there is a tacit understanding in the trade that government work is not worth having, unless the contracting parties are prepared either to put up with all kinds of official humbug, or to "square" it all and sundry. Unless the process of palmistry is adopted it is found that rejections are so numerous and so arbitrary that all the profits are eaten up. *Hanc illa lachryma.* At the same time you will understand that I do not impute the slightest suspicion of dishonorable conduct to any of the present holders of these contracts. With respect to those unfortunate Sheffield workmen who have forsaken their hearths and homes for Bridgeport, Conn., you may possibly notice a letter addressed to one of the local papers complaining of a breach of faith with the men by some of those who had engaged them. Col. Frary should explain this misunderstanding at once, for the sake of that good name for which all Americans should care most jealously, and for which they have hitherto been so highly respected on this side.

STAFFORDSHIRE AND BIRMINGHAM
are going along quite steadily, here and there with the briskness imparted by the receipt of new and more abundant orders, but for the most part in a plodding, persevering style. The iron works are certainly doing more work and getting better prices for their output than for a couple of years past. The only danger in the way of the progress of this upward movement is the probability that another 10/ in selling prices would at once bring about a quadrupled production, and so "strangle the goose." The hardware industries of Birmingham are very fairly employed. They are so numerous and so varied that the times must be bad indeed when some section or other of the trades carried on in the great hardware metropolis are not more or less brisk. Many of these are "luxury" trades, and any revival of general business promptly administrators a marked spurt to them. On the whole, Birmingham may be said to be better engaged than was the case three months ago, and to have capital prospects. The jewelry trades are "looking up" both at "Brum" and in London. An order for £10,000 worth of diamonds has been received here from the United States within the past few days.

SOUTH WALES AND MONMOUTHSHIRE
are better engaged all round. Among the shipments last week from Cardiff were 1000 tons of rails for Baltimore and 570 tons for New York, 200 tons of pigs for New York,

378 tons of pigs to San Francisco and 430 tons of sheets for New York. From Newport (Monmouthshire) 385 tons of tin plates went to Baltimore and 1440 tons of iron to New York. The "bounty" money offered by these ports for direct shipments of tin plates to the United States is pretty certain to operate, in time, to the disadvantage of the Liverpool exporters and other middlemen. The tin-plate manufacturers are extremely busy, and are holding out for still more money, the tone of cable advices from your market being especially strong, particularly as regards charcoal.

THE METAL MARKETS
are a trifle quieter, but prices are still very high, especially as regards tin, in which there is a goodly quantum of speculation. Lead has moved up a little. In quicksilver there has been an enormous jump, sales of 1200 bottles being reported at an advance of fully 25 per cent. Latest official quotations are: "Copper"—Chili bars quiet, £66 @ £66. 10/ spot, and £66. 10/ @ £67 for forward arrival; Wallaroo, £74 @ £74. 10/; Burma, £72; English tough, £71 @ £72; best selected, £72 @ £74; strong sheets, £77 @ £78. Tin.—Good business done in fine foreign; £93 @ £93. 10/ spot and forward; English ingots, £96 @ £97. Iron.—Scotch pigs, £54. 9/ @ £55. 6/ cash. Lead.—English pig, £17 @ £17. 5/; soft Spanish, without silver, £16. 17/6 @ £17. Spelter.—Dearer; £19 @ £19. 5/ for ordinary brands. Quicksilver, £8. 10/ @ £8. 12/6 for Spanish, spot, and £8, to arrive, for other sorts. Antimony, £62 @ £65.

FOREIGN.

FRANCE.

(*Moniteur des Interets Matériels.*)
PARIS, Oct. 26, 1879.—Metals.—The metal markets have been generally active, consumers coming forward freely. Copper.—There have been numerous orders for this metal at a considerable advance, which has ranged between 3.75 francs and 6.25 francs the 100 kilos. At the close we quote Chili Bars 170 @ 175; Ingots and slabs, 177.50; Best Selected, 180; and pure Corcoro, 179 francs. Marseilles has been a little firm, and small refined Ingots have improved 1/2 francs. They quote the latter 175; Sheet Copper, 185; Bolts, 105; Copper Sheathing, 190; and Yellow Metal 60, 180. Tin.—The French markets have at length followed suit, and advanced between 27.50 and 35 francs the 100 kilos. We now quote English Common, 240; and all other sorts, 145 francs. Marseilles has improved as much, and at the advance there are no sellers. They quote Banca 250; Straits and French, 245; and Common English, 240. Lead.—Extraordinary activity has been noticeable at a rise of 4.50 francs the 100 kilos. The closing quotation is 43 @ 44. A similar movement is reported from Marseilles, where argentiferous lead has advanced 1/2 franc, 40; Second, 35.50; Antimonial, 34; and manufactures 44 @ 45. Spelter.—The market has been firm and moderately active at an advance of 50¢ to 1 franc over former quotations. Marseilles is here and at Havre, and Sheet Zinc 65. Marseilles is steady at 60 @ 65 for Sheet Zinc and 27 for old Remelted. Iron.—The revival in this branch, which has now been lasting some months, has been kept up with much steadiness during the week, trade increasing in volume and prices being little influenced by occasional weakening tendencies in England. A fresh advance is foreboded and seems indeed impending. On the 6th proximo producers in the North will have a meeting, and a general advance will no doubt be resolved upon. Meanwhile the Northern and Eastern forges remain firm on the basis of 25 francs for Merchant Iron. While this is the case, the advice from Belgium are encouraging, the strike at Charleroi contributing to the firmness. Germany, we perceive, has advanced equal to 7 francs with affluence. Pig Iron. There is indeed, no fear of a decline in France now, although one of the leading houses has sold 500 lower, an isolated case finding no imitators. The new Ardennes Forges and Nail Company are getting ready to start, and accounts from the Haute-Marne are quite favorable; during the past fortnight the better qualities of iron have been in more active request, but producers have been slow in putting up prices. The demand for steels in that locality is good, and, despite considerable competition, prices are upheld. From the Meurthe and Moselle we hear that the Longwy people have raised the price of "moulage" Pig Iron 2 francs; No. 3, therefore, now ranges between 75 and 74 francs, as to quantity; white "affluence" sells at 55 at the works. At Nancy prices are slightly below these. The entire Northern department is loaded down with work. In the Rhone and Loire basins the iron companies have at length cashed their reserve, and have begun to give important orders. They are now even anticipating future appointments in that region, inasmuch as it had been expected the rolling stock company would fill their orders there, instead of which they have been favoring Belgian works. Both the Firming and St. Etienne steel works have been doing well. Coal.—This fuel has been in active demand; nothing of the kind has been seen for eight years past, and next month a rise of some importance is in prospect.

BELGIUM.

(*Revue Universelle.*)
BRUXELLES, Oct. 26, 1879.—Iron.—At an adjudication of 17,000 tons of Vignole rails required by the Eastern Railway an advance of 11 francs, as compared with the one on September 3, has been established. But one German firm, the Rhénish steel works, of Ruhrort, was represented, and not a single English work, while but a short time since there were 20 English and German firms at an adjudication to furnish the Upper Italy Railroad 15,000 tons of rails. This goes to prove the great change that has been wrought. Large orders for all sorts of goods in the iron line are now dropping in from abroad, and on quite a liberal basis. There is great readiness shown by purchasers to contract from five to six months ahead at a notable advance on ruling rates. At Liege a foreign concern has intimated that it would increase a former order considerably if it could be done at the price current to-day, but it has received a flat refusal. The largest orders now arriving come from Holland, which shows that they cannot do better in England. The Esperance works, of Liege, are doing splendidly for Russian account, and if they can retain this custom, they will make a fine year of it. Accounts from Charleroi are highly encouraging, the orders coming equally copiously from abroad and from the interior. Dealers begin to reassort, and builders are in the market. The strike in the Coal regions there has not been of much account. Our exchange has been well attended, and unusually animated, the demand embracing every imaginable kind of staple articles in the iron branch. Coal.—The market is very active. Coal.—Great activity prevails, and at Liege 50¢ at Charleroi franc advance has been paid for certain kinds of Coal. The demand is both for Coal for domestic and for industrial consumption.

GERMANY.

(*Börsenhalles.*)

HAMBURG, Oct. 25, 1879.—Metals.—The demand for Pig Iron in the iron regions of Western Germany has been steadily on the increase, and makers have declined making sales at current rates beyond immediate delivery. While the recent slight decline was reported from England, it is true, less eagerness to buy was manifested, but a stronger feeling has again obtained. All the rolling mills are active, and the Dortmund Union has resumed work with some machinery that had been at rest during five years. The Phoenix Co. intends blowing in two blast furnaces, and the same will soon be the case with a dozen in Rhénish Prussia and Westphalia. Independently of the Berlin shipments, the Frankfurt Trading Society has bought for America 50,000 cwt. of Old Rails, and a single American railroad has been in treaty for 10,000 tons of new Steel Rails. Copper is doing well at 65 @ 68.50 marks the 50 kilos, at Berlin.

We quote here Drontheim, 68 @ 69; Minnesota, 82; Mexican, 70, and Tough English, 68 @ 69. Tin.—Prices have improved considerably here, yet holders show little eagerness to sell. At Berlin Banca is worth 95 @ 95.50 marks the 50 kilos, and English, 93.50 @ 94. Here we quote Banca, 90 @ 92, and English Refined, 92 @ 94. Lead.—The German markets are well sustained. Berlin quotes Tarnowitz, Harts and Saxonia, 15 @ 15.25 marks. We quote here, English Pig, 17; ditto Sheet Lead, 17.50; German Pig, 16.50, and Spanish, 18 marks. Spelter.—A calm has seized upon the German markets with the sole exception of that of Breslau, which has been moderately active at 18 to 19 marks the 50 kilos, for Godulla, and 18 marks other brands.

AUSTRIA.

(*Austrian Trade Journal.*)

VIENNA, Oct. 26, 1879.—Metals.—There has been no notable improvement in the iron market here since our last report, although some daily papers have made a great deal of noise insisting on the contrary. Nay, Pig Iron prices have been lowered 2 florins by common accord. But although in larger dealings there has been no advance, and even a slight recede so far as Pig Iron is concerned, the smaller works have done 50 good business kilos, parcels of moderate size. The fact is that the larger works are by no means favorably situated, and we do not see any reason why the stock exchange should have undertaken to bolster up some of these concerns notoriously unprofitable and their shares quoted a great deal higher than they are worth. There is indeed no basis for aping the speculation in shares of iron works which has been going on elsewhere. The only thing of magnitude that has transpired in Austria since the revival was started has been the sale of some 150,000 centweights of Old Rails. Prospects for the future are, however, by no means discouraging. Among other requirements the Hungarian State railroads will require 10,000 cwt. of Steel Rails, for the sale of which we presume Belgian works will compete. A demand has been springing up in Hungary for Sheet Iron, but the stocks accumulated in first hands in summer are so excessive that not much of an improvement is probable. Merchant Iron is slow in moving off, and prices are not yet remunerative. Coal is looking up; the fall season has been a short one, and with colder weather the demand is springing up all of a sudden. The demand perceptible extends to all classes of coal.

HOLLAND.

(*Koek & Vterboom.*)

ROTTERDAM, Oct. 23, 1879.—Tin.—There has been an uninterrupted advance in this metal, Banca selling at 56 guilders the 50 kilos, and Bilton at 55. The auction sales at Batavia, 13th inst., of 10,000 slabs Bilton has come off with much spirit, the average price paid being 56.32 guilders per picul. Lead.—There has been a further improvement. At the close Stollberg cannot had below 10.65 guilders the 50 kilos, while other good sorts have been dealt in at 10.25, a price which is still offering, while at 10.375 some more might possibly still be had.

EAST INDIES.

(*Schmidt, Kusterman & Co.*)

PRERANG, Sept. 18, 1879.—Tin.—The market a fortnight since opened at 82.12 piculs, but the impulse of a lively demand, and prices rapidly rose to 82.52%. There have been purchases for American account 3600 piculs at between 82.30 and 82.50, and 2000 piculs for India and China at 82.50 @ 82.52%. For England only 170 piculs have been taken at 82.10 @ 82.40. The market closes firm at 82.475%. Stock in bazar, 600 piculs.

The Row at the Tilly Foster Mine.

A dispatch from Brewster, N. Y., dated Nov. 7, says: Much excitement was caused here yesterday afternoon by the seizure of the Tilly Foster Iron Mines, situated two miles from this place, by an armed police force from the city of Scranton, Penn. These mines are controlled by the Lackawanna Iron and Coal Company. Last fall Andrew Cosgriff, superintendent, made contracts with F. H. Canfield and Thomas Maley to mine ore in different parts of the Tilly Foster Mine. The work contracted for necessarily requires a long time to finish, and the contractors claim that no time was fixed at which the work should be finished. On the 31st of October Messrs. Canfield and Maley were notified that their contracts ceased that night. Acting under legal advice, they continued to hold possession and prosecute their work. Yesterday afternoon the mine was entered by several uniformed and armed members of the Coal and Iron Police, an organization belonging to Scranton. The miners were forced to stop work and ejected from the mine, one of the men receiving a bayonet wound. The Sheriff of Putnam County, having been summoned, arrested the Pennsylvanians, and they were held to await the action of the Grand Jury. It is not probable that any further trouble will occur, although much indignation is expressed by citizens of this place at what they consider an illegal incursion by officers from another State.

Commercial Gloom in Australia.

One of our old shipping firms has just overhauled the Australian mail, and remarks upon the despondent tone which pervades all commercial circles. At Sydney the exhibition was a disappointment. No such renewal of trade has occurred as had been predicted. Prices were very low. Goods sold at auction brought only nominal prices. At Adelaide alone was any improvement perceptible. At Wellington there were numerous failures, and there was a general lack of confidence. From Australia as a whole, therefore, accounts are anything but flattering. The mail brings very few orders, which is regarded with satisfaction rather than otherwise. Overtrading is declared to be the sole cause of the trouble. A young English merchant, just arrived, says things at home are not much better than in the colonies. Excepting in the iron interest there is no improvement, and fears are expressed that even in this particular much is artificial, and in its nature temporary.

Messrs. Joseph Wharton, of Philadelphia; A. B. Stone, of New York, and D. G. Hussey, of Pittsburgh, with the Hon. D. J. Morrill *ex officio*, have been appointed a committee of the American Iron and Steel Association to co-operate with The Industrial League in securing an adequate fund for the erection of a suitable monument to the late Henry C. Carey. The work is in good hands and the monument which is certain to be erected will be a noble one, worthy to commemorate the life work of the great economist, whose writings are everywhere displacing, in the estimation of thinking men, the shallow sophistries of free trade, which they so ably and logically refute.

A few puddlers in the Duncannon Iron Works, Duncannon, Pa., violated the rule of the company, which is that a notice of two weeks shall be given of a rise or decline in wages, and were discharged. The wages of the remaining puddlers were advanced to \$4.75 per ton after the two weeks' notice.

INDUSTRIAL ITEMS.

MAINE.

A number of gentlemen recently formed a corporation, at Portland, for the manufacture of iron in all its branches, which will be known as the Ligon Iron Company. President, Phillip Henry Brown, secretary and treasurer, J. N. Leavitt. It is the intention of the company to purchase of Hon. J. B. Brown the property of the Portland Rolling Mill, which that gentleman recently bought at auction, and as soon as the transfer can be effected and the condition of the mill permit, they will put it into active operation.

MASSACHUSETTS.

The works of the John Russell Cutlery Company, at Turners Falls, are now running full time, employing 650 hands, and producing 3000 dozen pieces daily, comprising a general assortment of cutlery from the cheapest to the finest grades. They do an especially large business in pocket cutlery, of which they manufacture 150 different varieties. These works are said to be the largest of their kind in the United States. Their buildings are 1800 feet in length, and they have in use three water wheels, with a combined capacity of 675 horse-power. The company manufactures only standard goods, and although prices of all kinds of cutlery have lately been advanced, continue to meet with a good demand for their productions. The foreman of this company has just patented a process for casting a metallic bolster on pocket knives, in such a way that the scale linings and blade are firmly secured by a single operation, and the cost of knife-making materially lessened.

The business of the Handrey Axle Company, of South Abington, will hereafter be carried on by Davis Gurney & Son, at their factory in that town.

The Bridgewater Iron Company have just completed a two-story building to be used as a packing room for the horse-nail department. A new furnace and boiler are now being added to the establishment.

The workmen of the Gold Medal Sewing Machine Co., of Orange, are working 12 hours per day, turning out daily 175 finished machines.

RHODE ISLAND.

The Providence and Worcester Railroad Company have purchased a lot of land at Valley Falls, and work has already begun on the foundations for new machine and car shops.

CONNECTICUT.

It is said there has been more coal, lumber and pig iron landed at Belle dock, New Haven, since March than in the previous five years.

Russell & Erwin Manufacturing Company, of New Britain, are laying the foundation for the extension of their iron foundry, and expect to have it completed in a short time.

The Meriden Malleable Iron Co.'s works were damaged \$15,000 or \$20,000 by fire last week. The loss was covered by insurance.

The Birmingham Rolling Mill is now operated by E. S. Wheeler & Co., of New Haven, who are pushing the mill to its utmost capacity.

NEW YORK.

Seven hundred and fifty tons of steel rails have been distributed along the line of the Troy and Boston railroad at various points east of Valley Falls. When these rails are placed in position the Troy and Boston will be an all-steel railroad from Troy to the State line.

The malleable iron works of Torrance, Merriam & Co., at Green Island, Troy, have added a new boiler, and after a short shut are going in operation.

NEW JERSEY.

Messrs. Cooper, Hewitt & Co. are reported to have purchased the Request Furnace, situated near Phillipsburg, paying the sum of \$65,000 cash. Mr. E. D. Hemphill, of Allentown, Pa., trustee, was offered \$80,000 for the property shortly after closing the sale to Messrs. Cooper, Hewitt & Co.

PENNSYLVANIA.

Vast improvements are taking place at the Mt. Hickory Furnaces at Sharpsville. The hot-blast oven recently put up and now in use, is the largest in the valley, and works splendidly. Stack No. 1 has been thoroughly overhauled, and will be ready to go into blast in a short time. A trestle-work 600 feet in length is now being built, for the purpose of running cars upon and dumping the ore, which is an improvement that was much needed and one that will be of great utility in the handling of ore. A new engine has just been purchased, and will be put in as soon as possible. With three engines, the company will be able to run both furnaces. The new engine was bought of Weimer Bros., of Lebanon, Pa., and has a number of desirable improvements over the blast-furnace engines now in use.

Some time ago the Philadelphia and Reading Railroad Company began repairing the Fort Carbon Furnace, but they finally abandoned the project and leased the place to C. M. Atkins, who is now having the work of repairing continued by a large force of men. The furnace will be in operation shortly.

Nearly all the furnaces of the Schuylkill Valley are in operation, and all other industrial establishments soon will be.

The Glen Rolling Mill at Allentown, which by reason of litigation has been unproductive for some years, was lately purchased at sheriff's sale by Mr. Christian Fretz, of the above city, who now offers it for sale.

It is reported that the Shenango Iron Works, New Castle, have been leased by Rhoades & Co., Cleveland, S. Perkins, of New Castle, and Wm. McCurdy, of Youngstown.

Three quarries in Hanover, besides sending their quota of stone to the furnaces in Allentown, are supplying the Parryville furnaces with about 1000 tons of stone weekly, shipped on the Lehigh and Susquehanna Railroad.

Work upon laying the rails for the new siding, to extend from the Wilmington Railroad to S. Seyfert's new rolling mill, at Gibraltar, has been commenced, and the railroad company will soon be able to deliver the material for the structure at a convenient place.

In a description of the works of the Pennsylvania Steel Co., published in the Harris-

burg Daily Patriot, we find the following items of interest: To meet the greatly increased demand for the products, the construction of an additional Bessemer plant was decided upon some time ago, and the work has been in progress for several months. The principal part of the building has been completed, and foundations for the engines and machinery are in place. The building is of stone, 153 x 230 feet, with roof wholly of iron. There will be three converters, arranged in front of two pits. The outfit of cupolas will be ample for melting the iron as fast as the converters can take it, and all the arrangements will be on a scale calculated for handling a product of over 150,000 tons per annum. The foundations for the machinery are of the most massive character; many of them are of cut stone, evidently intended for very powerful engines. The machinery to be used in the new plant is all of it in process of construction in the extensive shops of the company. A new addition to the open-hearth plant has been taken in hand also, the furnaces being built in a brick building 125 by 106 feet.

Some of the furnaces in Fayette County experience great difficulty in procuring water. One of them is supplied from a small pipe three miles in length. On Tuesday the water in the pipe was frozen, and 100 men were kept at work nearly all day thawing it out.

Blair County contains 514 square miles, and has within its boundary 326,400 acres of land, only about one-fifth of which is used for farm lands, the balance being mountainous lands covered with timber and rocks, and underlaid with coal and iron ores. It has 14 blast furnaces for the manufacture of pig metal from the ores, one-half of which are still idle. Seven are in full blast, three are being repaired preparatory to starting, and the other four are in statu quo. There are four rolling mills, all running to their full capacity, making muck bar and all sizes of merchantable bar or rod iron. There are also four old bloomeries or forges, all standing idle or abandoned, being superseded by the puddling furnaces now attached to our rolling mills. There are 11 foundries, only 8 of which are in operation, making metal castings of all kinds. There are about 20 open iron ore banks, not one-half of which are being worked. Some of our furnaces are using foreign ores from Spain, Africa and other countries, and the native ores left undisturbed in their native beds.—*Altoona Tribune.*

Gibbs, Sterrett & Co., Titusville, received on the 5th inst., from the City of Mexico, a large order for drilling tools. The order includes machinery and complete outfits for several wells.

It is said that a Liverpool firm have received instructions to secure 100 riveters for a large firm in Philadelphia.

E. & G. Brooks, Birdsboro, are building several new furnaces at their mill adjoining the nail factory, and the new engine which was erected recently is in working order.

A large number of the business men of Butler, Butler County, are considering plans by which manufacturing establishments can be induced to locate there.

The Musselman Furnace, at Marietta, which was sold recently, will soon be put in operation.

The product of the Bessemer department of the Pennsylvania Steel Company for the month of October, was 9000 tons Bessemer ingots and 878 tons open-hearth ingots; product of the blooming mill, 9240 tons blooms. During the month the rail mill made nine changes of rolls in working hours; nevertheless the product was 7685 tons of finished rails, aggregating 166 miles. The week ending November 1 was remarkable for heavy work, the product of the Bessemer department being 2280 tons ingots, and the product of the rail mill being 2102 tons rails. In 12 hours, October 27, day turn, 212 tons rails (756 bars) were produced, and October 30 the night turn produced 191 tons rails (766 bars), and October 31, 193 tons rails (774 bars) in the same time. The company pay out about \$50,000 a month in wages to 1500 employees, and made last year 70,046 tons of steel rails, 35,664 tons of pig iron, and 7734 tons of steel forging. The company has a surplus of \$1,580,359 over its capital of \$2,000,000, with a debt of only \$300,000. It has paid 9 per cent. in dividends for the year, and the stock sold recently at 130.

The Harrisburg Patriot says: It is stated on reliable authority that some of the trunk railroads have recently given orders for 7000 new freight cars, to be completed from the 15th of November at the rate of 12 cars a day. These orders will require 17,000,000 pounds of pig iron for wheels alone, and nearly 5,000,000 pounds for axles, with an additional 5,000,000 pounds for ironwork.

The Birmingham Rolling Mill was to have been sold at auction on Wednesday, the 12th inst.

Spratt, Johnson & Co., Empire Flow and Agricultural Steel Works, Allegheny City, are being run to full capacity. Sixty-five hands are engaged, and the firm report more orders on hand than they can fill.

All the manufacturing industries at Connelleville, Fayette County, have as much work as they can attend to, and most of them are running on night turn.

Robert H. Coleman has named the two furnaces he is about erecting "Colebrook." They are named in honor of the old charcoal furnace, the ruins of which are still visible at Colebrook, 9 miles southwest from Lebanon.

Wm T. Ellis' foundry, at Pottstown, is full of orders, and it will take 4 months to fill them. They have a large amount of castings to furnish to the Pottstown Iron Co. for their blast furnace, which they are rebuilding and expect to blow in by February, 1880.

The Juniata Rolling Mill, of Hollidaysburg, has just put up a new double "Buffalo" puddling furnace. They have now 15 puddling furnaces running on double time making muck bar.

The Valente Iron Works, at South Williamsport, which have been idle for quite a long time, are again running full handed, and will be known in the future as the Williamsport Rolling Mill and Iron Works. The works cover about ten acres of ground, and have a river frontage of 300 feet. The mill contains two 15-inch trains of rolls 15 inches in diameter, and one

train of rolls 8 inches in diameter. There are eight charcoal fires, the blast for which is furnished by an independent engine. In the forge there is a large steam hammer of modern make, used for hammering the iron into blooms. There are two heating furnaces in the finishing department running to their fullest extent, and there are in process of construction several puddling furnaces. The product will be all kinds of small merchant iron; also wire rods, for which they have a large demand.

The Philadelphia Smelting Company are now making a specialty of church altar candlesticks, polished and chased brass, sanctuary lamps, &c. This is said to be an entirely new branch of business in this country, orders hitherto having been sent to France, Austria, &c. The company are turning out magnificent work from designs of their own, and also execute orders from designs furnished by others. The business promises to be very important, the work done so far having given entire satisfaction.

The Uhler Furnace, Easton, was sold on Monday, the 10th inst., by the executors of Peter Uhler, to Henry Green Easton, G. B. Linderman and E. P. Wilbur, for \$45,000. The furnace cost \$110,000 when built, and at a previous public sale was sold to Peter Uhler for \$230,000.

The Millerstown Furnace, at Macungie, Lehigh County, was sold by the sheriff on Saturday to Isaac McHose for \$90,000. This is a first-rate furnace, and it is the second time that it has been sold, the first sheriff's sale having been set aside on condition that Mr. McHose would pay more for it. The first sale was for \$80,000. Connected with Mr. McHose are T. J. and Wm. G. Audenried, of Philadelphia; Dr. H. K. Hartzell, of Allentown; James Singmaster, of Macungie, and Richard L. Jones, of Reading. Repairs will begin to-day, and the furnace will probably be in blast within five weeks.

The Musselman Furnace was bought, on the 26th ult., by Mr. Ethelbert Watts for himself and others, and will be put in blast at once. No. 2 Furnace at Marietta, Pa., the property of Mr. A. M. Watts, of Philadelphia, has just been very successfully blown in.

The Baldwin Locomotive Works, Philadelphia, has just completed and shipped two locomotives to Melbourne for the Province of Victoria, Australia. In addition, their foreign orders include several for railroads in the Empire of Brazil, and for roads in Mexico and Cuba. The most flattering exhibit on the books of the company, however, is the orders received for domestic roads. As was stated at that establishment, although the day for cheap locomotives had passed and gone, pig and bar iron each having increased 70 per cent. in price since the beginning of the year, still the great crops of the West had to be moved, and in consequence, roads which had not ordered a new engine in six years were now sending in their orders, even at the increased price.

The company are now finishing a contract for 15 locomotives for the Cincinnati Southern, 6 for the Kansas Pacific, 8 for the St. Louis and San Francisco and 5 for Morgan's Louisiana and Texas line. One of the largest contracts is for 20 engines for the Philadelphia and Reading Railroad. Sixteen of these are what are technically termed consolidation freight, and will be all furnished with John E. Wootten's patent fire-box for burning anthracite dust and refuse.

PITTSBURGH AND VICINITY.

More trouble at the troublesome Pittsburgh water works. Messrs. R. D. Wood & Co., of Philadelphia, who received the contract for furnishing 36-inch and 30-inch pipes for the water-extension department, have positively refused to sign the contract unless the city agrees to release them from liability in the 30-inch contract. They claim that they are not bound by the latter contract, announce their intention of fighting the whole thing unless the city concedes that point, and have stopped work on the 36-inch pipe.

Some years ago a well was bored at Spang, Chalfant & Co.'s iron works, in the borough of Atna, near Pittsburgh, for the purpose of securing natural gas, but a vein of salt water was struck, and from 5000 to 8000 gallons per day of the fluid has since been allowed to run to waste. A salt works is now to be erected, which will utilize the water.

There are about 1500 tack machines in this country, Ches, Smyth & Co. operating 70 of them.

Sheriff & Hazely, Pittsburgh, have closed a contract with the owner of the Murrysburg (Westmoreland County) gas well, for erecting a large carbon-black factory, requiring about 4 tons casting and 2000 feet of gas pipe, with 3000 burners.

The Keystone Rolling Mill, at Soho, Second avenue, Pittsburgh, has been purchased by Messrs. Williams, Long & McDowell, whose office is at No. 87 Water street. Mr. John I. Williams, the senior partner, was formerly connected with Messrs. Graff, Bennett & Co. Hon. Henry M. Long, another member of the firm, is the present Speaker of the Pennsylvania House of Representatives. The new firm will manufacture merchant bar and skelp iron, as well as sheets and plates of all sizes.

The Youngstown Coke Company is the style of a new firm organized in that city to operate in the Connelleville coke region. The following well-known iron and coal firms are interested in this new enterprise: Mahoning Valley Iron Co., Brier Hill Iron and Coal Co., Himrod Furnace Co., and the Struthers Furnace Co.

Messrs. W. B. Scaife & Sons are erecting a fire-proof building, 65 x 272 feet, for the National Tube Works at McKeesport to take the place of the foundry and boiler shop recently destroyed by fire.

The Kittanning Rolling Mill Co. are laying the foundation for a new blast furnace, size of stack to be 16 x 65. The rolling mill will start up as soon as necessary repairs can be made. Graff, Bennett & Co., Pittsburgh, are largely interested in this concern.

The Clinton Iron Works are shut down to await the substitution of a new battery of boilers in the bar mill and the building of new heating furnaces.

Several old locomotives at Superior Station are being broken up for scrap iron. They were wood burners, built in 1858 in Boston. The first of the new large engines built in

the Allegheny shops for the P. F. W. & C. R. R., was finished and tested last week. It weighs 76,900 pounds, about 5000 pounds heavier than those now in use on the road. The diameter of the steam cylinder is 1 inch larger than those now in use, and it is expected to make fast speed and pull heavy trains. It is to be used in running passenger trains from Pittsburgh to Alliance. The test was very satisfactory.

The scarcity of coal, arising from the low stage of water in the rivers, has caused the suspension of the night turn at Shoenberger's mill, and the turn will not be resumed until the necessary quantity is secured. A large number of men are idle in consequence.

The sales of pig iron at Pittsburgh the past week have been unusually large, aggregating 15,575 tons. Large sales in addition were also made for future delivery.

Messrs. H. C. Frick & Co. have erected a river transfer to the P. V. & C. R. R. at Green Springs landing, opposite Braddock's. By this means they can run coke over the Southwest, cross the river on the Braddock's bridge, and by the coke tippie at Green Springs load in boats for shipment South by river. They have capacity for 40 cars a day, and with the opening of navigation will begin loading for Cincinnati and points below. So far this is the only siding with a river front now operated by the Pennsylvania road.

Robert Lea, manufacturer of steamboat machinery, has on his order-book sufficient work to keep him running until next March, with a bright prospect for work the rest of the spring and summer. He employs about 45 men.

Totten & Co. make all their sand and chilled rolls from air furnaces, which insure from 15 to 20 per cent. more strength. To keep up with their orders, they have been compelled to erect another 15-ton air furnace. Their melting capacity is now 60 tons per day.

Nellis, Shriver & Co., Allegheny City Agricultural Works, have a large amount of orders on file, and are making shipments to California and Oregon, and Canada, France, Germany and England.

Work on the extension to the Westinghouse Air-Brake Company's building is progressing rapidly. When completed, the capacity of these works will be increased about one-third. They have received an order to equip the trains of the New York and Philadelphia new line with their automatic air-brake. The Central of New Jersey, which owns the New York end of the line, has hitherto used the vacuum brake.

H. Anshutz & Co., the stove manufacturers, find their hands full in filling orders. Most of the goods are sold in Western Pennsylvania, Ohio, West Pennsylvania and part of Indiana.

The Beaver Falls Steel Works last week received a heavy order for various kinds of steel from Los Angeles, Cal. The mill started on double turn this week.

Jacobus & Nimick Manufacturing Company's works are running full handed. The filling department is working on one-half time. About 200 persons are employed in the several departments of these works.

Graff, Bennett & Co., Millvale Iron Works, are in full operation—double turn in all departments. About 600 men are furnished employment. Additions to the works are being made. A double gas puddling furnace (Swindell's patent) is being built.

Spang, Chalfant & Co.'s iron works are in active operation, running full double turn. Natural gas is the fuel used in these works, and is supplied from the vein struck several years ago. The supply has not diminished, but seems to be inexhaustible. About 500 hands are employed in the several departments of the works.

The total receipts of iron at Pittsburgh for the month of October were 68,000 tons.

There is in course of erection at the boiler shops of Reese & Thorn, on Duquesne Way, a large steel vessel, the second of the kind ever built in Pittsburgh. It was ordered by the government of the United States of Colombia, South America. The hull will be made entirely of steel and will be 155 feet long, 32½ feet deep, and 5-foot hold. Angle lines will be 2 by 3 feet, and the spaces 18 inches. The steel plates are to be double-ripped. There will be three 4½-inch bulkheads. When the frame is completed three tubular boilers will be placed on board, each to be 45 inches in diameter and 17 feet long. In the interior of each one of them there will be 41 tubes. The cylinder will be 16 inches and will have a 6-foot stroke. The government of South America intend to run it upon the Magdalena River. A similar boat was built in this city about a year ago for the same stream. The work is being rapidly pushed forward and will be finished at an early date.

One hundred and sixty men are employed in making the necessary preparations for putting the rolling mill in operation at Kittanning. Five hundred men is the estimate made of the force necessary to run the mill and furnaces.

MARYLAND.

The La Grange charcoal and the Elk Ridge coke furnaces are abandoned.

Stack No. 1 of the Maryland Furnace, at Baltimore, went into blast November 1.

VIRGINIA.

The James River Steel Manufacturing and Mining Company has been organized in Amherst County by Philadelphia parties. Ex-Governor John F. Hartranft, of Pennsylvania, is President, and J. P. Richeson, secretary and treasurer.

WEST VIRGINIA.

The Riverside Glass Works, at Wellsburg, are being pushed forward to completion.

OHIO.

The advance in iron probably affects all business around Youngstown. Twelve furnaces are now in operation, turning out 600 tons of pig iron every day, and 8 rolling mills turning out 200 tons of finished iron. Building is on the increase, and the city is growing.

The Warren Rolling Mill has been purchased by Mr. C. Westlake, of Youngstown, who will soon put it into operation. At Salem the stove foundries and all the other manufactories are crowded with work.

The Portsmouth Iron and Steel Company's rolling mill and its new open-hearth steel furnace continue in full blast, running on double turn. A new sheet-iron roof is being placed on the mill buildings.

The Buckeye Glass Works, Martin's Ferry, are running full time. Eleven turns are being made per week, and the workmen are kept busy in order to keep up with orders.

The Ironton Register says: W. C. Amos, J. D. Olare and Mrs. J. H. Simmons have purchased the bloom furnace for \$45,000, and will immediately put it into blast.

The rolling mill of the Cherry Valley Iron Works, at Leetonia, started up Thursday, the 30th ult., at about half its capacity. It has been idle for about four years. The proprietors expect to run the mill full within a few days.

KENTUCKY.

The Pennsylvania Furnace, at Riverton, was partly destroyed by fire Saturday, the 8th instant.

ILLINOIS.

The iron shutter and roofing manufacturers of Chicago are very busy on city work, and have all they can do to fill orders. This increase of business is owing to the large amount of building going on just at present.

The Union Rolling Mill Co., Chicago, are putting in a new blooming mill, which will be ready for operation January 1, 1880.

INDIANA.

The gas furnace owned by the Depauw Glass Works at New Albany, which has not been in use for several months, has been put in order again and the works will be lighted by gas of their own manufacture.

MINNESOTA.

The Minneapolis Iron Works, O. O. Pray, proprietor, are building for their own use a new brick wall house and mill stove shop. For the past two years this establishment has been full of work, and at present is engaged setting up flouring and saw-mill machinery, &c., with a prospect of a busy winter and spring.

WISCONSIN.

The Racine Agricultural Foundry and Machine Works were founded some 33 years ago and are still operated by A. P. Dickey. The production of the works includes fanning mills, plows, harrows, cultivators, field rollers, road scrapers and other agricultural implements. Mr. Dickey has about \$75,000 capital invested, employs, when working full force, some 75 hands, and his works have an annual capacity of production of \$150,000.

The Hurlbut Manufacturing Company, Racine, Messrs. Hurlbut & Co., proprietors, in 1870 commenced the manufacture of a patent lock for wagon-brakes, which had been recently patented by the senior member of the firm. In 1873, 6000 locks were made and sold, and since that the business has steadily increased; several improvements in the lock having been made. The company was incorporated some two years since, with a capital of \$10,000. Some 12 hands are now employed and 45,000 wagon-brake locks are now made annually, with the demand constantly increasing.

The Racine Hardware Mfg. Co. was originally started in Kenosha. The works were transferred to Racine in 1874, when the company was reorganized and additional capital secured and the works greatly enlarged. The specialties of manufacture are light hardware, florists' goods, ferneries, aquaria, school and hall furniture, veneer boats, &c. To keep up with the constantly increasing demand for their goods the company are now erecting factory buildings. The works occupy nearly four acres of land. Capital of the company, \$75,000. About 150 hands employed. Annual product, \$200,000.

The Racine Iron Works of S. Freeman & Son, Racine, were established in 1869 by Stephen Freeman on a small capital. The works include boiler shop, machine shop and foundry, which occupy an area in the heart of the city 350 x 120 feet, and give employment to a force of 100 skilled workmen. The leading specialty of the firm is the manufacture of steam boilers, of which they will turn out over 300 this year. The boiler shop is the largest of the kind in the State, giving constant employment to 40 experienced boiler makers. The capacity of the works has been increased nearly 33 per cent. within the past two years, and the prospects for the year to come are brilliant. Value of annual product about \$120,000.

The Sparta Iron Works, at Sparta, L. M. Newbury, proprietor, have been established 10 years, and during that time they have never been shut down a day, except for some slight repairs. The buildings are of brick, 60 x 124 feet, two stories high, exclusive of pattern shop and warehouses.

Smith & Morrell, La Crosse, proprietors of the La Crosse Threshing Machine Works, and manufacturers of the Clipper Thresher, down and mounted powers, trucks, wood-sawing machines, &c. These works were established in 1867, and have been under the management of the present firm since 1876. The factory building is of stone, 40 x 250 feet. During the busy season, 65 hands are employed, and about 100 machines are turned out annually.

The Pioneer Foundry, La Crosse, John James & Co., proprietors, is one of the oldest concerns in the city, having been established some 20 years ago. Forty to 50 skilled workmen are kept constantly busy. The specialties are iron and brass founding, machinery and mill furnishings, including the manufacture of steam engines, turbine water-wheels, buhr dressers, millstone drivers and balance weights, mill picks, &c. The works are driven to their utmost capacity to keep up with orders.

ALABAMA.

The Central Alabama iron and coal field is being developed rapidly. The most important enterprise under way in that section is the furnace of the Edwards Iron Company, at Woodstock, Bibb County. This furnace will go in blast about January 1, 1880. The height of stack is 55 feet; contents about 5000 cubic feet. The blowing engine will furnish 10,000 cubic feet of blast per

Tea Pots and Kettles.
 Purvis R. C. Philadelphia..... 24
 Sundry Mfg. Co., Buffalo, N. Y..... 24

Tin Plate, Importers of.
 N. & G. Taylor Co., Philadelphia..... 2

Tin Plate, Manufacturers of.
 Monitor Tin Plate Works, 44 Cliff, N. Y..... 3
 T. S. Iron and Tin Plate Co., Pittsburgh, Pa..... 4

Tin Ware, Stamped and Japanned.
 Block David, 65 Bayard, N. Y..... 27
 Shepard Sidney & Co., Buffalo, N. Y..... 27

Tissue Paper, Anti-Tarnish Silver.
 Butler Jr., H. V. & Co., 34 Beade, N. Y..... 38

Toe Kaliks.
 Ives, Woodruff & Co., Mount Carmel, Conn..... 24

Tools, Railroad and Milling.
 Reisdal, Paul & Co., Pittsburgh, Pa..... 29

Tools, Turpentine.
 Chater R. Dundas, 157 Pearl, N. Y..... 7

Trawlers.
 Bruce Geo. W., 1 Platt, New York..... 37

Try Squares, Levels, &c., Makers of.
 Shepard Sidney & Co., Buffalo, N. Y..... 25

Tube Expanders.
 Dudgeon Richard, 21 Columbia, N. Y..... 9

Turns.
 Merchant & Co., 407 Market, Phila..... 27

Twist Drills, Makers of.
 N. & G. Taylor Co., Philadelphia..... 2

Upholsterers' Goods.
 Turner & Seymour Mfg. Co., 81 Beade, N. Y..... 27

Wheels, Rail Road.
 Ludlow Valve Mfg. Co., Troy, N. Y..... 2

Mohawk & Hudson Mfg. Co., Waterford, N. Y..... 1

Vanish.
 Berry Brothers, Detroit, Mich..... 1

Vases.
 Morris Falls Co., 74 Chambers, N. Y..... 2

Water Wheels.
 West Reading Pipe and Mach. Works, Reading, Pa 36

Whistles.
 Whitney A. & Sons, Philadelphia..... 2

Wheelbarrows.
 A. & C. Cohl, 107 Water, N. Y..... 24

White Lead.
 Brooklyn White Lead Co., 65 Maiden Lane, N. Y..... 32

Wire, Manufacturers of.
 Colgate Robert & Co., 39 Pearl, N. Y..... 23
 Jewett John & Sons, 184 Front, N. Y..... 2
 Lewis John T. & Broes., 231 S. Front, Phila., Pa..... 32

Window Balances.
 Huginin Robt. B., Wethersfield, Conn..... 24

Window Springs, Makers of.
 Hammond W. S., Lehighville, Pa..... 27

Wire, Manufacturers of.
 Cary & Moen, 204 W. 20th, N. Y..... 3
 Cleveland Rolling Mill Co., Cleveland, Ohio..... 30
 Gaultier Steel Co., Ltd., Johnston, N. Y..... 2830
 Gilbert & Bennett Mfg. Co., 273 Pearl, N. Y..... 2
 Grissold J., Wool, Troy, N. Y..... 2
 Haigh J., Lloyd, St. John, N. Y..... 2
 Harrison Wire Co., St. Louis, Mo..... 2
 Howard & Morse, 45 Fulton, N. Y..... 2
 Prentiss Geo. W. & Co., Holyoke, Mass..... 2
 Trenton Iron Co., Trenton, N. J..... 2
 Washburn & Moen Mfg. Co., Worcester, Mass..... 2

Wire Drawing Machinery.
 Adt John, New Haven, Ct..... 36

Wire Goods, Manufacturers of.
 Dufur & Co., 48 N. Howard st., Baltimore, Md..... 3
 Gilbert & Bennett Mfg. Co., 273 Pearl, N. Y..... 2
 Oliver E., 105 and 108 Beekman st., N. Y..... 3

Wire Nails.
 American Wire Nail Co., Covington, Ky..... 7
 Duabar, Hobart & Whidden 39 Warren, N. Y..... 7
 Field A. & Sons, Taunton, Mass..... 9
 H.P. Nail Co., Cleveland, Ohio..... 28

Wire Rope, Iron and Steel, Makers of.
 Broderick & Wacoom, St. Louis, Mo..... 2
 Haigh J., Lloyd, St. John, N. Y..... 2
 Hazard Mfg. Co., Wilkesbarre, Pa..... 2
 Roebbling's John A. Sons, Trenton, N. J..... 2

Wrenches, Manufacturers of.
 Berns & Call Hdw. & Tool Co., Springfield, Mass..... 3535
 Coes A. G. & Co., Worcester, Mass..... 10
 Coes L. & Co., Worcester, Mass..... 21
 Girard Wrench Mfg. Co., Girard, Pa..... 6
 Van Wagner & Williams, 52 Beekman, N. Y..... 38

Wood Working Machinery.
 Forsanth, S. C. & Co., Manchester, N. H..... 37

Wringers.
 Alexander T. J., Boston, Mass..... 9
 Metropolitan Washing Machine Co., 32 Cortlandt, N. Y..... 35
 Peersless Wringner Co., Cincinnati, O..... 35

minute at a pressure of $3\frac{1}{2}$ pounds to the square inch. The coke from Pratt mines, on the Alabama Great Southern Railway, will be used, and the brown hematite ore of that locality will alone be smelted. The intention is to make a high grade of mill iron, and to that end the ore will be carefully selected. The furnace with the material indicated should produce fully 30 tons average daily, or about 10,000 tons per year. The company officers are: Giles Edwards, president; Thomas J. Edwards, superintendent; H. T. De Bardeleben, treasurer. The corporation has abundance of capital to carry the venture to a successful issue.

The old furnace stack at Rockwood, on the C. S. Railway, the property of the Roane Iron Company, will be blown in a few days. This is the pioneer coke furnace in the South, I believe, and is small and old-fashioned. It will produce about 20 to 25 tons daily. The new stack is in blast and is making some 30 tons daily. The company have a considerable stock of pig on hand.

TENNESSEE.

A project for building blast furnaces at the iron mines in Hickman County, at Nashville and at Cowan, on the N. & C. Road, is contemplated by men of means and experience. There are great beds of fine ores in Hickman, but no coal. The trains which hauled out the ore for Nashville and Cowan could carry coke back to Nashville from Cowan, and also to the furnace at the ore beds. There is much attention being given by prudent and experienced parties to iron-making projects in Middle Tennessee, and considerable progress may be looked for in that region if iron remains at prices insuring fair profits.

Mr. A. B. Payne, of Nashville, owner of Worley Furnace, in Dickson County, has leased his furnace to Messrs. J. C. and Leslie Warner, who expect to put it in blast in 60 or 90 days. Worley Furnace, when previously in blast, was run on brown hematite ore, and made a very tough mill iron, using charcoal fuel with hot blast. It has been out of blast since October, 1876.

MISSOURI.

The Semple and Birge Manufacturing Company, of St. Louis, which suspended last July, resumed business Nov. 7. The assignee has been discharged by the court and directed to turn over all the assets to the company, all the claims against the company having been adjusted under the composition agreed upon with the creditors.

We clip the following from the St. Louis Journal of Commerce: The Harrison Wire Company are running double turn and with a full force of men. The demand for wire of the quality used for barbed fencing is almost unprecedented. George Felber's machine works, on Mulberry street, are actively occupied. Mr. Felber enjoys a large trade in perforated metals for screens, etc., and for general mining and milling machinery. He has also perfected a combined power punch and shears, which is meeting with much favor among machinery men. Smith, Beggs & Co. are manufacturers of an improved Corliss engine, and it is said they are the first company that have built a Corliss engine west of the Mississippi. The engine differs considerably from the ordinary Corliss patterns, using one eccentric on the main shaft, and introducing several new features in connection with the valves. The Corliss patents have expired, and the principles of the famous Corliss engine have been made the basis for many subsequent patterns and improvements. The Excelsior Stove Works have not suffered any appreciable loss because of the strike of the molders which has just terminated. A large stock of stoves was on hand when the strike began, so that orders were not delayed, the business going on about as usual. Very few of the old men have been reinstated, molders having been brought to the city from other points, and many of the St. Louis molders have sought work in other cities. A shipment of 500 tons of foreign iron is looked for soon. Shickel, Harrison & Co. have some very large orders for water mains from the Western States. Their works are running to the full capacity, and considerable architectural casting is being done at present.

A large bed of fine potter's clay, near Eureka, Humboldt County, Cal., is pronounced to be the best in the State, and expensive works are now being built to utilize it.

GLASS ITEMS.

PITTSBURGH AND VICINITY.

McKee Bros. are building a new 12-pot furnace at their glass works on the South Side, and expect to be in operation by January next.

Tibby Bros. glass works are running to full capacity. About 200 hands are employed.

Wolfe, Howard & Co. expect to have their new glass factory ready for occupancy by the first of next year. The furnace will have a capacity of 10 pots, and the factory will be one of the most complete in the country.

The chimney-glass trade is holding its own, while, as usual at this season, the fruit-jar trade is dropping off.

Glass manufacturers report the trade in excellent condition.

Parties from Pittsburgh have been prospecting for a site for a glass factory at Wellsburg, W. Va., but have not yet settled down.

Pittsburgh manufacturers of glassware have made quite a number of large shipments to California recently.

It is stated that J. A. Chambers will repair his old glass works at McKeesport, which have been idle since 1872.

Advance in Freight Rates.—From Monday, the 10th inst., until further adopted lines eastward from Pittsburgh will adopt the following schedule of advanced rates, applying to fourth class traffic only:

	Iron	Less than
	Car Loads	Car Loads
Pittsburgh to Baltimore	\$0.22
" " to Philadelphia23
" " to New York25
" " to Boston & Prov.30
" " to New York33
	GRAIN RATES.	Car Loads
Pittsburgh to Baltimore	\$0.18
" " to Philadelphia19
" " to New York21

A New Compound for Making Casts, Molds, &c.

Our exchanges bring us an account of a new cement known as Jannin's cement, from the name of the patentee, a resident of Paris. The cement is simply a mixture, in suitable proportions, of yellow oxide of lead (the quality known as massicot being preferable) with glycerine. Several other metallic oxides and matters may be mixed with the cement, so as to suit the quality or the color of the cement to the nature of the work to be produced, but the two essential compounds are yellow oxide of lead and glycerine, varying according to the consistency of the cement it is desired to produce. The proportion of glycerine is larger for a very soft cement than for a stiff cement. The exact proportion of each of the two essential compounds are not specified. The paper from which we make our extract says that this cement is specially adapted for molding those objects which require an extreme delicacy in the lines of the cast, such as engraved blocks and plates, forms of printing type, phototypic plates, &c. Under the influence of gentle heat it sets in a few minutes, and then resists perfectly both pressure and heat. When set, it is also a very good substitute for natural lithographic stones, and it can replace them for many practical purposes. It can also be used for artistic reproductions, such as *fac similes* of terra cotta, whose color and sonorous quality it possesses. Though setting to great hardness in a few minutes, it does not shrink. Massicot, it may be observed, is an old name for litharge, but the term is more generally applied to the yellow oxide of lead, prepared from the scum of the molten metal by roasting until the color is fully developed. For purposes in which the color is of no moment, the scum itself would doubtless answer, provided it is thoroughly oxidized.

A mixture of litharge and glycerine forms a well-known cement, discovered, if we are not mistaken, some 10 or 12 years ago in this country by Dr. P. H. Van der Weyde. As a plastic material, however, it is a novelty. We doubt very much whether as a substitute for lithographic stones it will come into use. It is strong and hard and sets rapidly. Some attention must be given to the quality of the glycerine, which must be nearly pure, at least, to form a good cement, capable of setting quickly; it must be free from water and quite thick. We suppose the thick purified article to be found in the drug stores would answer. It is possible that the quality known as crude would answer just as well except for the presence of water. The discovery of the value of this compound as a cement was rather a matter of accident. Dr. Van der Weyde wished to seal a glass stopper into a bottle, so that it would remain perfectly tight and yet be easily removed when desired. Not wishing to use wax, the material commonly employed for the purpose, he took some litharge, and mixing it with glycerine, applied it around the stopper. It answered one portion of the requirements of the case perfectly, and the contents of the bottle were kept from leaking, but the doctor found, when he came to empty the bottle, that bottle and stopper were as firmly united as though they had been made in one piece, so that it became necessary to break the neck of the bottle to get at the contents. It is needless to say that it was not again used for that purpose.

Iron and Steel Locomotive Boilers on German Roads.—In reply to questions submitted to the German roads on the subject of recent experience with iron and steel locomotive boilers, a report to the German Railroad Union, published in the *Railroad Gazette*, gives the following as the conclusions reached on roads in northern and southern Germany and in Austria: Bessemer plates are of little advantage, because the material is rarely perfectly homogeneous. Martin steel or similar material, as well as crucible steel, can be employed when it possesses the following properties: a. A resistance of about 65,000 lbs. per square inch, and when a test piece 3 inches long can be stretched 16 to 20 per cent. b. When it cannot be tempered, and a red-hot strip, cooled in water, can be bent cold until half the distance across the bend is equal to one and a half times the thickness of the plate without causing the slightest trace of a crack. If special circumstances make the use of steel necessary, it is advisable to anneal the complete boiler in a furnace made for that special purpose. But wherever it is possible to use good iron plate (of the full strength of 45,000 to 47,000 lbs. per square inch, and bearing a longitudinal extension of 16 to 20 per cent.) without too great cost, it is unquestionably advisable to give the preference to the iron plate. The final conclusions of the report are: There is no new experience of importance which is favorable to the further introduction of steel boilers. The chief disadvantages of steel boilers seem to consist in the fact that the plates commonly have properties in consequence of which injurious tensions and cracks are easily produced in bending and riveting them. Mild steel plates seem suitable for boilers, but still offers but slight advantage over the best kinds of iron.

A Brittle Steel Rail.—As the record of rails which are known to have caused accidents are very few in number, it may be of interest to cite the following, which is taken from a report by Major-General Hutchinson on an accident at Hendon, England. The broken rail, which was the probable cause of this accident, was a bull-headed steel rail 24 feet long. It weighed originally 83 lbs. to the yard, and the head was worn down about 1-16th inch. It was broken into two large portions, 20 feet and 4 feet long, and a third small triangular portion was broken out of the bottom flange. The surfaces of fracture were clean, but not fibrous. A chemical analysis of a portion of the rail near the point of fracture has been made at Derby, with the following results: Carbon, .79 per cent.; silicon, .068 per cent.; phosphorus, .074 per cent.; manganese, .62 per cent., showing a large excess of carbon, tending to make the rail very brittle. This excessive brittleness was also shown by the behavior of a portion of

the rail under a falling weight. The test which the Midland Company expect their steel rails to pass is that, when supported on bearings 4 feet apart, they should not break under a thrice-repeated blow from a ton weight let fall from a height of 12 feet. Every one-hundredth rail of a batch is so tested, and if one of the batch fails, then every fiftieth rail, and so on. A portion of the broken rail thus tested broke at the first blow from a ton weight falling only 3 feet.

The Pennsylvania Railroad Company proposes to build new coal cars that are intended to carry about 20 tons, larger than any that have been in use heretofore, being about 6 inches higher than the hopper gondolas railroad men are at present so familiar with. During last week one of these cars was taken to Shamokia, Pa., in charge of an employee of the motive power department of the company at Altoona, and was run beneath the several breakers in the neighborhood in order to ascertain whether or not its height was too great for use in the anthracite regions. It was then taken to Lykens, Pa., and also to Nanticoke, with the same object in view, the car successfully passing under all the breakers at which it was tested. The gentleman who superintended the experiments has returned home, and states that the company will shortly begin the erection of a sufficient number of similar cars for the coal trade.

The owners of the gas well at Murraysville, near Manor Station, Pa., which produces 60,000 cubic feet of gas per hour, are about to erect an immense apparatus for making carbon or lamp black, the machinery for which will cost \$5000. It consists of some 25 tons of castings, 1000 feet of gas pipe, 4000 6-foot gas burners, scraping carriage and operating device, and other accessories. The gas as it issues from the well will be led to a large frame building, 300 feet by 175 feet. Four lines of branch pipes of 2 inches diameter extend nearly the entire length of this building—250 feet—and parallel to each other. Each of these is pierced with 1000 apertures, ranged along opposite sides of the pipe, above which are attached burners and smooth plates, under which a light track will be placed, and a carriage with a scraper attached will run every ten minutes and scrape off the lamp black.

The number of post-offices in operation on June 30 was 40,855. There were 2676 offices established and 1079 discontinued during the fiscal year. Besides the 41,000 postmasters there are about 16,000 other persons throughout the country who perform service, comprising 414 in the Post-Office Department, 4894 clerks, 2350 letter-carriers, 54 special agents, 2600 employees of the railway mail service and 5650 mail contractors. In addition to these it is estimated that there are at least 50,000 persons who look for their compensation directly to the local authority, and therefore that there are over 100,000 persons directly connected with our postal service.

J. E. Adger & Co., hardware merchants, of Charleston, S. C., have made an assignment. Their liabilities are \$383,668 and assets \$209,218.

LION FEED CUTTER.

Dealers desiring the exclusive sale of this SUPERIOR MACHINE, which takes the Trade wherever introduced, will please address for circular and terms

THE BELCHER & TAYLOR A.G.L. TOOL CO., Chicopee Falls, Mass.

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THE "A B C BOLTED" will outlast five ordinary barrows. \$24 per doz.

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Patent Concave Ox Shoes.

The only forged Ox Shoe made with concavity to fit hoof, and the best and cheapest.

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Manufacturers of

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Warranted thoroughly made and the Best in Use.

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The Original and Genuine.

ALL OTHERS ARE IMITATIONS.

OVER 100,000 NOW IN USE.

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With Porcelain-Lined Cooler.

ACKNOWLEDGED THE ONLY COMPLETE AND SUCCESSFUL FILTER AND COOLER IN THE WORLD.

ISAAC S. WILLIAMS & Co., 728 Market Street, Philadelphia, Pa.—We have sold your "Patent Water Filter" for the last six years. Our sales in that time having reached upwards of five thousand, and in no instance have we heard of any failure in performing all you claim for them.

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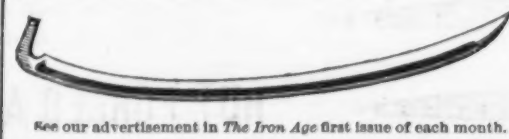
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Wilmington, Delaware,

Beg to call the attention of manufacturers of Sheet, Hoop and Band Iron to their

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for grinding the rolls used in said manufacture. By grinding such rolls, instead of turning, a much greater degree of accuracy is obtained, and as very much less metal is removed from the roll by the grinding operation, the rolls will last much longer. Our Grinding Machines produce perfectly accurate work, and will grind either straight or hollow.



Beardsley Scythe Co.,

Manufacturers of

GRASS, GRAIN & BUSH SCYTHES,

Hay Knives & Corn Knives.

West Winsted, Conn.

THE STAR SALT CASTER CO.,

Office, No. 161 FRANKLIN ST., BOSTON.

Manufacturers of

Specialties in House Furnishing Hardware.

PATENT EXTENSION DOOR KNOBS

(Pat. Jan. 29, 1878)

manufactured in

every variety of

style. Silver-Glass,

Silver Center, Fine

Cut, &c. Fitted with

heavy silver-plated

mountings. Extend

from 1 to 3 inches.

They can be adjusted

to doors of any

thickness without

the annoyance of

the old-fashioned

washers and pins.

Our "Patent Chamber

" (Pat. Nov. 6,

1877) prevents all

possibility of the

bursting of the glass

bulbs.

A trial will make

plain their merits.

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Retail Price, \$1 per window (four balances).

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Retain Medium and Light Window Sash at

any point of opening, with large surplus hold-

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quaintance with the genuine

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Wanted,

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Sashes are locked with a meet-

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Silver Center, Fine

Cut, &c. Fitted with

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They can be adjusted

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washers and pins.

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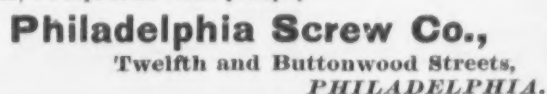
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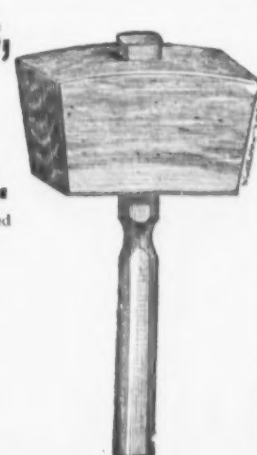
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GERMAN SILVER TUBING.—dis 10 %

Oils.		
Lined, Raw, in casks and bbls.	W gal. Bz & 80	
Boiled	900 & 910	
Bleached Whale	W gal. 810	
Elephant	W gal. 850	
Signal	550	
Crushed Lard	550	
No. 1	550	
West Virginia	180 & 210	
Empire Cylinder	560	
Miners Oil	55 & 410	
Neatsfoot	550	
Tallow	550	
Engine	550	
Sandries.		
Ash atom	80	
Bentine	75 & 810	
Coke	80	
Block	80	
Dryer, Patent, am'n	am'n cans, 1050 & 800	
Glass	80	
Glass, White	33 & 410	
Glass, Sheet	35	
Glass, Pot, Zinc	80	
Gum, Copal	80	
Damar	80	
Shellac, English	80	
dark	40	
Litharge, English	80 & 40	
Crushed Wine	80	
Pumice Stone, selected Lumps	4 & 10	
powdered	80	
Putty in blocks	80	

in bulk.....	50c
Rotten Stone, soft, English.....	70c
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Prices current per box of 50 feet.

Single Thick.—Discount 50 %

SIZES.		1st.	2d.	3d.	4th.
0 X 8	10 X 10 X 15.....	8 75	8 75	8 67	8 75
11 X 14	16 X 20.....	8 75	8 60	7 97	7 00
12 X 18	22 X 30.....	11 25	10 50	9 75	8 75
15 X 30	22 X 34.....	13 50	12 25	11 25	
22 X 36	24 X 34.....	14 75	13 75	13 25	
25 X 42	30 X 34.....	17 50	16 50	15 50	
30 X 48	36 X 36.....	18 75	16 75	15 50	
34 X 54	42 X 36.....	21 00	17 50	16 00	
36 X 54	48 X 36.....	21 00	19 50	18 00	

Double Thick.—Discount 60 %

SIZES.		1st.	2d.	3d.	4th.
6 X 8	8 X 10 X 15.....	12 00	14 00	10 00	
11 X 14	16 X 20.....	14 75	15 75	10 75	9 75
12 X 18	22 X 30.....	17 50	18 50	13 50	12 50
15 X 30	22 X 34.....	21 00	19 25	15 50	
22 X 36	24 X 34.....	25 00	26 75	18 50	
25 X 42	30 X 34.....	27 50	27 50	19 25	
30 X 48	36 X 36.....	27 00	25 00	21 25	
34 X 54	42 X 36.....	28 50	26 50	22 25	
36 X 54	48 X 36.....	28 50	27 50	23 75	


24 X 6 to 24 X 60	34.75	30.00	27.00
30 X 6 to 30 X 60	35.50	32.50	30.50

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An additional 10 per cent. will be charged for all sizes more than 40 inches wide. All sizes above 52 inches in length, and not making more than 52 inches will be charged in the 52 unified inches bracket.

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Quick, strong, clean Powder of very fine grain for rifle shooting.

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Fg and FFg.—The Fg for long range rifle shoot and the FFg and FFfg for general use, burning long and true.

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24 X 6 to 24 X 60	34.75	30.00	27.00
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Sizes above 40 X 6—\$10.00 per box extra for every five inches.

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H. Boker & Co.'s Celebrated "Tree" Brand Cutlery.
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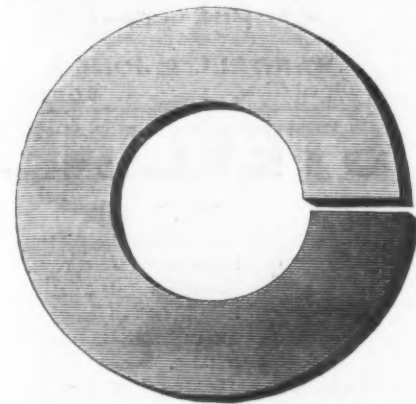
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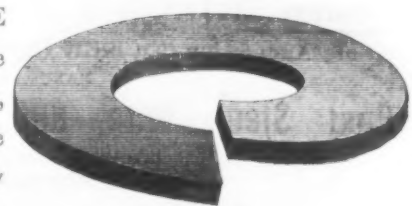
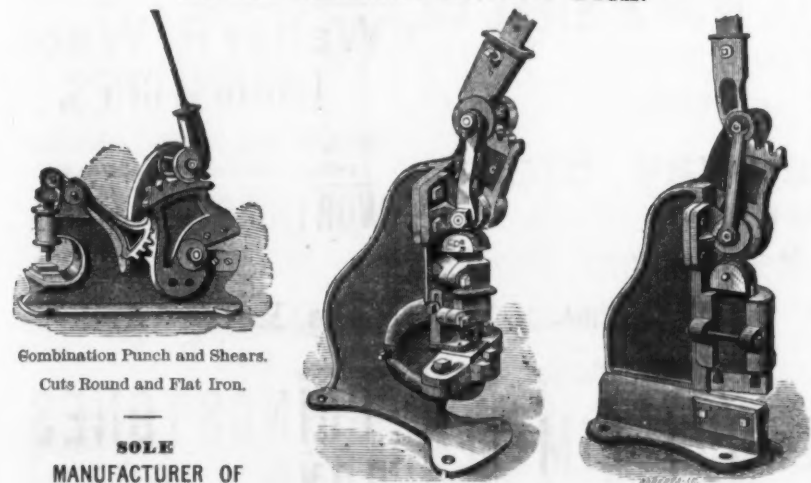
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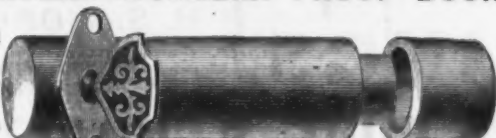
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AND PROTECTED BY ACT OF PARLIAMENT.

Works:—BYCAMORE STREET, SHEFFIELD. ESTABLISHED in the Year 1754

BUYERS ARE SPECIALLY CAUTIONED AGAINST
IMITATIONS OF THE MARK, AND THE
SUBSTITUTION OF COUNTERFEITS
BEARING THE NAME, "WILSON," ONLY.

North Chicago Rolling Mill Co.

ESTABLISHED 1857. CAPITAL, \$3,000,000. INCORPORATED 1859.

Works at Chicago, Ill., and Milwaukee, Wis.

MANUFACTURERS OF

MERCHANT BAR, FISH PLATES, PIG METAL,
IRON RAILS & BESSEMER STEEL RAILS.

CAPACITY OF WORKS.	
Fish Plates.....	20,000 tons
Merchant Bar.....	10,000 "
Pig Metal.....	10,000 "
Iron Rails.....	10,000 "
Steel Rails.....	10,000 "
Total Capacity per year.....	250,000 "

OFFICES:

17 Metropolitan Block, Chicago, Ill.
37 Mitchell Block, Milwaukee, Wis.

O. W. POTTER, President, CHICAGO.
S. F. BURR, Vice-President, NEW BEDFORD.
S. CLEMENT, Treasurer, MILWAUKEE.
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PYROLUSITE MANGANESE COMPANY,

MINERS, DEALERS AND EXPORTERS OF HIGH TEST

Crystallized Black Oxide of

Manganese

IN CRUDE STATE.

Suitable for the manufacture of Ferro-Manganese, Spiegeleisen, Bessemer Pig, &c. Also, fine ground and granulated, especially prepared for

STEEL, GLASS, PAINT, VARNISH and DRYER MAKERS, OIL BOILERS, &c.

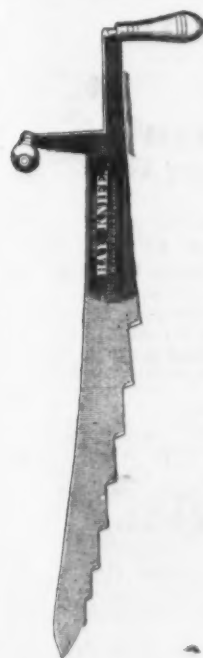
MANUFACTURERS OF SUPERFINE FLOATED

Standard Barytes, Gritless Ochre, Borate of Manganese, &c.

Office, 54 Cliff Street, New York.

LIGHTNING HAY KNIVES,

WEYMOUTH'S PATENT.



This knife is the best in use for cutting down hay and straw in mow and stack, cutting fine feed from bale, cutting corn stalks for feed, cutting peat and ditching marches.

The blade is best cast steel, spring temper, easily sharpened, and is giving universal satisfaction. A few moments' trial will show its merits, and parties once using it are unwilling to do without it. Its sales are fast increasing for export as well as home trade, and it seems destined to take the place of all other Hay Knives.

They are nicely packed in boxes, one dozen each, of 50 lbs. weight, suitable for shipping by land or water to any part of the world.

Manufactured only by

HIRAM HOLT & CO.,

East Wilton, Franklin Co., Maine.

For sale by the Hardware Trade generally.

Philadelphia Smelting Co.,

S. E. Cor. Twelfth and Noble Sts., PHILADELPHIA.

GENUINE BABBITT,

Guaranteed at a speed of 10,000 a minute, and at any pressure for 10 years.

ALL GRADES OF ANTI-FRICTION METALS
DEOXIDIZED BRONZE,

Superior to Phosphor Bronze or any other alloy of Copper and Tin for Machinery Journals.
Solders, Stereotype Metal, Gas and Steam Fittings and Fixtures, Brass and Composition Castings.

Send for circulars.

WIRE NAILS

French Points, Window Shade Nails,
Upholstering, **WAGON NAILS**, Molding Nails

(Sample Cards sent on application.)

Electrotype, Roofing Nails,
Barbed Caster Nails.

Veneer Nails, Label Tacks and small Nails of all kinds, Cabinet Nails, Barbed Lock Nails, Cigar Box Nails, &c., &c., put up in bulk, 5 lb. packages, 2 lb. papers, or as wanted.

AMERICAN WIRE NAIL CO.
Factory, Fifteenth and Madison Sts. COVINGTON, KY.

ESTABLISHED IN 1859.



PUBLISHED EVERY SATURDAY.

THE OLDEST AND CHIEF REPRESENTATIVE OF THE IRON, HARDWARE AND METAL TRADES.

OFFICE: 44a CANNON STREET, LONDON, E. C.

ADVERTISEMENTS AND SUBSCRIPTIONS ARE RECEIVED AT THE VARIOUS OFFICES OF "THE IRON AGE," NAMELY:

NEW YORK OFFICE: DAVID WILLIAMS, Publisher of *The Iron Age*, 83 Rensselaer street.

PITTSBURGH OFFICE: 77 Fourth Avenue—JOS. D. WEEKS, Manager and Associate Editor.
PHILADELPHIA OFFICE: 220 South Fourth Street—THOMAS HOBSON, Manager.

CINCINNATI OFFICE: Builders' Exchange—T. T. MOORE, Manager.
SOUTHERN OFFICE: Cor. Eighth and Market Streets, Chattanooga, Tenn.—S. B. LOWE, Manager.

SPECIAL FEATURES.

Notes of Novelties.—This is a department of the journal always watched with interest by the trade, as it contains an account, from week to week, of the novelties which manufacturers and inventors are introducing to the notice of the trade. These articles are freely illustrated.

Special Correspondents.—The *Ironmonger* has a deserved reputation for its special correspondence from all the principal Continental, British and manufacturing centers. The writers are gentlemen holding important positions in the districts with which they are connected, and possess facilities for acquiring information specially suited for the columns of the *Ironmonger*. *The Week, Legal News, Trade Notes, Bankruptcies, Foreign Notes, Colonial Jottings, Merchants' Circulars, Imports and Exports, &c.*, are each departments of the journal, containing a digest of all matters of direct interest to the Iron, Hardware and Metal Trades. In addition to the above, there is a carefully classified list of Patents, together with Editorial Notes, French, Belgian and other Special Correspondence.

SUBSCRIPTIONS

to the *Ironmonger* and *Metal Trades Advertiser*, with which is sent every fourth week the Foreign Supplement (see below), may commence from any date, but are not received for less than a year complete. The rate is \$5 per annum, inclusive of postage to any part of the world outside Great Britain. To every subscriber is presented, free, in the course of his year, a handsome and useful *Ironmongers' Diary and Text Book*, a work sold to non-subscribers at 75 cents.

ADVERTISEMENTS

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SPECIAL ISSUES.

In April and October of each year there is published a Special Issue, the circulation of which is not less than Twelve Thousand (12,000) copies.

THE IRONMONGERS' DIARY AND TEXT BOOK.

This is an annual, presented free to every Subscriber to the *IRONMONGER* AND *METAL TRADES ADVERTISER*. It contains a large number of ruled skeleton pages for diary and other entries, and in addition much useful reference information, varied from year to year. It is handsomely bound in cloth, gilt; and as copies are used in thousands of establishments for a whole year, it is obviously a medium of exceptional value for advertisements. Sold to non-subscribers at 75 cents.

THE FOREIGN SUPPLEMENT

Is published every fourth week in connection with the extensive and world-wide circulation of the *Ironmonger* itself. The dates of its publication in 1879 will be as follows:

JANUARY 11, FEBRUARY 8, MARCH 8, APRIL 5, MAY 3 and 31, JUNE 28, JULY 26, AUGUST 23, SEPTEMBER 20, OCTOBER 18, NOVEMBER 15, DECEMBER 13.

This Supplement is published in

FIVE LEADING COMMERCIAL LANGUAGES

of the world, including English, and is sent to all the countries where they are spoken, thus placing the contents of the *Ironmonger* not only within reach of the native language of eighty millions of German, forty-two millions of French, twenty-eight millions of Italian, and fifty-one millions of Spanish speaking people; or, in all, over two hundred millions of inhabitants in the principal nations where the best purchasers of manufactured goods are to be found.

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One-third page.....	12.50	14.10	15.65	One-sixteenth page.....	3.20	3.40	4.00

Advertisers will do well to use illustrations freely. Where economy of space is an object, a left page illustrated and described in one language, can be suitably described in four or more languages on the opposite or right page without illustrating.

THE WHOLE FOREIGN HARDWARE TRADE,

so far as our experience of twenty years is concerned, will be covered by THE FOREIGN SUPPLEMENT at least twice a year. Thus a Price List or Advertisement inserted in the *Ironmonger* and *Foreign Supplement* is a strikingly powerful and most efficient way of publicity, not to be compared with any of the other ordinary channels of communication.

B. KREISCHER & SONS, FIRE BRICK.

BEST AND CHEAPEST.
Established 1845.
Office foot of Houston Street, East River,
NEW YORK.

NEWTON & CO.,

ALBANY, N. Y., Manufacturers of

FIRE BRICK

Stove Linings,

Range and Heater Linings

Cylinder Brick, &c., &c.

M. D. Valentine & Bro

Manufacturers of

FIRE BRICK
And Furnace Blocks
DRAIN PIPE & LAND TILE.

Woodbridge, - - - N. J.

BORGNER & O'BRIEN,

Manufacturers of

FIRE BRICK

Edge Pressed Furnace Blocks,
CLAY RETORTS, TILES, &c.,
Twenty-third Street,
Above Race, PHILADELPHIA.
Twenty years' practical Experience.

PERTH AMBOY TERRA COTTA CO.,

Successors to

A. HALL & SONS, Perth Amboy, N. J.,
ARCHITECTURAL TERRA COTTA

FIRE BRICK.
170 Broadway, NEW YORK.

Brooklyn Clay Retort

FIRE BRICK WORKS.

Manufacturers of Clay Retorts, Fire Bricks, Ga.
House and other Tile, Cupola Brick, &c. Dealers in
and Miners of Fire Clay and Fire Sand. Clay bank at
Burr's Creek, New Jersey. Manufacture: Van Dyke,
Elizabeth, Richards and Partition Sts., Brooklyn, N. Y.
Office No. 88 Van Dyke St.

Watson Fire Brick Manufactory

ESTABLISHED 1806.

JOHN R. WATSON, Perth Amboy, New Jersey.

Manufacturer of

FIRE BRICK,

For Rolling Mills, Blast Furnaces, Foundries,
Gas Works, Lime Kilns, Tanneries, Boiler
and Grate Setting, Glass Works, &c.

FIRE CLAYS, FIRE SAND, AND KAOLIN FOR SALE.

HENRY MAURER,

Proprietor of the

Excelsior Fire Brick & Clay
Retort Works,

Manufacturer of FIRE BRICK, HOLLOW
BRICK AND CLAY RETORTS.

WORKS PERTH AMBOY, NEW JERSEY
Office & Depot: 418 to 422 East 23d St., N. Y.

TROY FIRE BRICK WORKS

Troy, N. Y.,

JAMES OSTRANDER & SON,

ESTABLISHED 1845,

Manufacturers of

FIRE BRICK,

Tuyeres, Tiles, Blast Furnace Blocks, etc. Miners and
Dealers in Woodbridge Fire Clay and Sand, and States
Island Kaolin.

Established 1864.

CARDNER BROTHERS,

MANUFACTURERS OF

STANDARD SAVAGE

Fire Brick, Tile & Furnace Blocks,

OF ALL SHAPES AND SIZES.

Clay Gas Retorts and Retort Settings,

AND

Miners and Shippers of Fire Clay.

OFFICE: 376 Penn Ave., Pittsburgh, Pa.
WORKS: Mt. Savage Junction, Md., and Lockport, Pa.

HALL & SONS,

FIRE BRICK,

Buffalo, N. Y.

MILLER'S BRICK PRESSES

(Established 1844).

FIRE and RED BRICK.

And Brickmakers' Tools in General.

SAML. P. MILLER & SON,

309 South 5th St., Philadelphia.

W. & J. TIEBOUT,

Manufacturers of

Brass, Galvanized & Ship
Chandlery Hardware,

No. 990 Pearl Street, New York.

DUG'S IMPROVED ELEVATOR BUCKET.



THE STORE-HOUSE BUCKET.
(Partial straight front.)
In 12 in., 14 in., 16 in. and 17 in. Sizes.

Send for Circular.

Made of Best Charcoal Stamping Iron.

No Corners to Catch.

Light Running and Very Durable.

The only Scientifically Constructed Elevator Bucket
in the Market.

T. F. ROWLAND,

Sole Manufacturer,

CONTINENTAL WORKS, Brooklyn, E. D., N. Y.



THE
MILL BUCKET.
In 3 1/2 in. to 10 in.
Sizes.

NICHOLSON FILE CO.,

Manufacturers of

FILES AND RASPS.

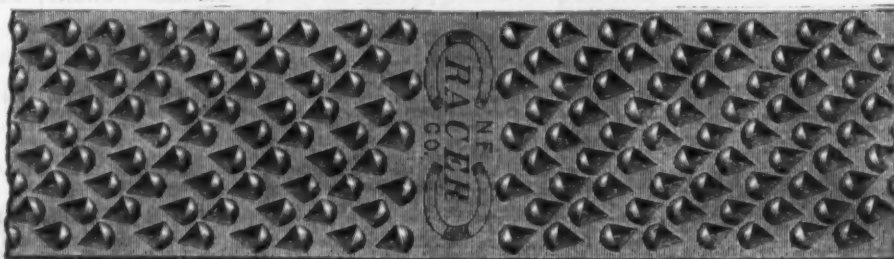
ALSO

Filers' Tools & Specialties.

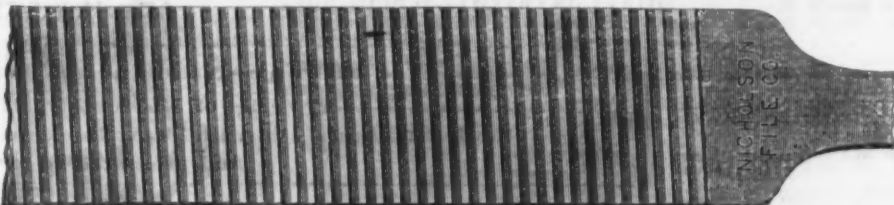
Manufactory and Offices at Providence, R. I.

The following space will be used in illustrating our specialties, the matter being changed weekly.

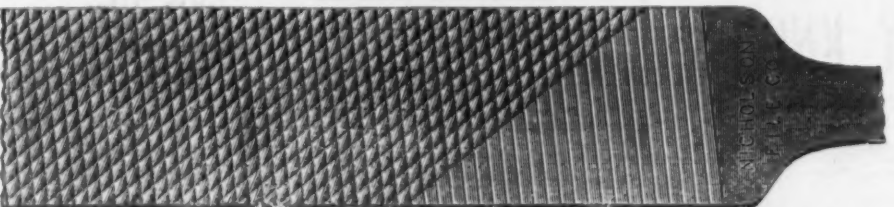
IMPROVED HORSE RASPS.



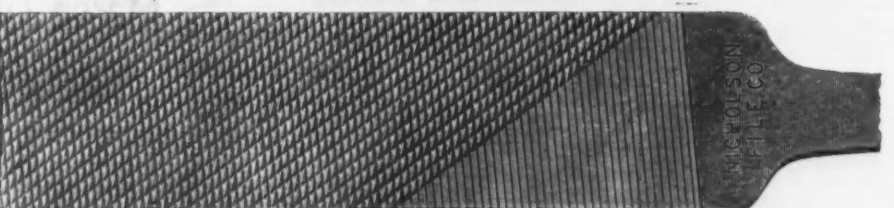
LEAD FLOAT.



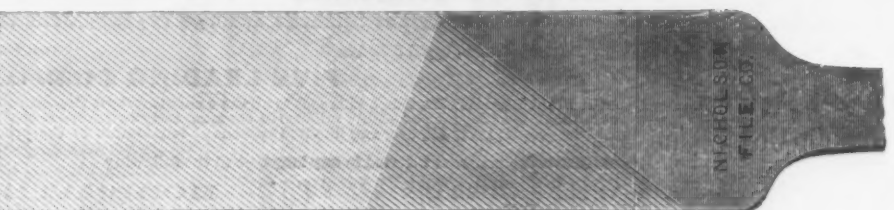
BRASS COARSE.



BRASS BASTARD.



FINISHING 2d CUT.



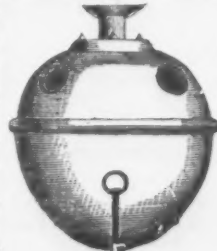
G. W. Bradley's Edge Tools.

Butchers' Cleavers,
Butchers' Choppers,
Axes and Hatchets,
Grub Hoes and Mattocks,
Mill Picks,
Box Chisels and Scrapers,

Ring Bush Hooks,
Ax Eye Bush Hooks,
Socket Bush Hooks,
Watt's Ship Carpenters' Tools,
Carpenters' Drawing Knives,
Coopers' and Turpentine Tools.

FOR SALE BY

MARTIN DOSCHER, Agent, 96 Chambers Street, N. Y.



Established 1838.

Bevin Bros. Mfg.
Co.,

Easthampton, Ct.

Manufacturers of
SLEIGH BELLS

Horns, Ties, Bands,

Gong Bells &c.

Bell Metal Kettles.

John T. Lewis & Bros
No. 231 South Front St.,
PHILADELPHIA.



TRADE MARK.

MANUFACTURERS OF

Pure White Lead, Red Lead, Litharge,
Orange Mineral, Linseed Oil,
AND PAINTERS' COLORS

Brooklyn White Lead Co.



TRADE MARK.

White Lead, Red Lead & Litharge.
89 Maiden Lane, NEW YORK.
FISHER HOWE, TREASURER.

JOHN JEWETT & SONS
Manufacturers of the well-known brand of

WHITE LEAD.



TRADE MARK.

ALSO MANUFACTURERS OF

LINSEED OIL.

182 Front Street, NEW YORK.



TRADE MARK.

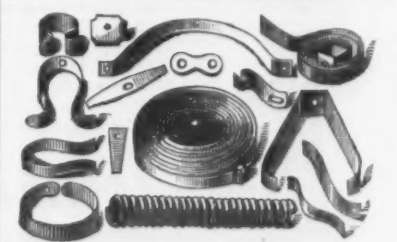
The Atlantic White Lead
and Linseed Oil Co.,

MANUFACTURERS OF

White Lead (Atlantic), Red Lead,
Litharge & Linseed Oil.

ROBERT COLGATE & CO.,

287 Pearl Street, New York



DUNBAR BROS.,

Manufacturers of

Clock Springs and Small Springs

of every description, from best Cast Steel.

BRISTOL, CONN.

Torrey's Door Springs.

P. R. DUNNE,

Manufacturer,

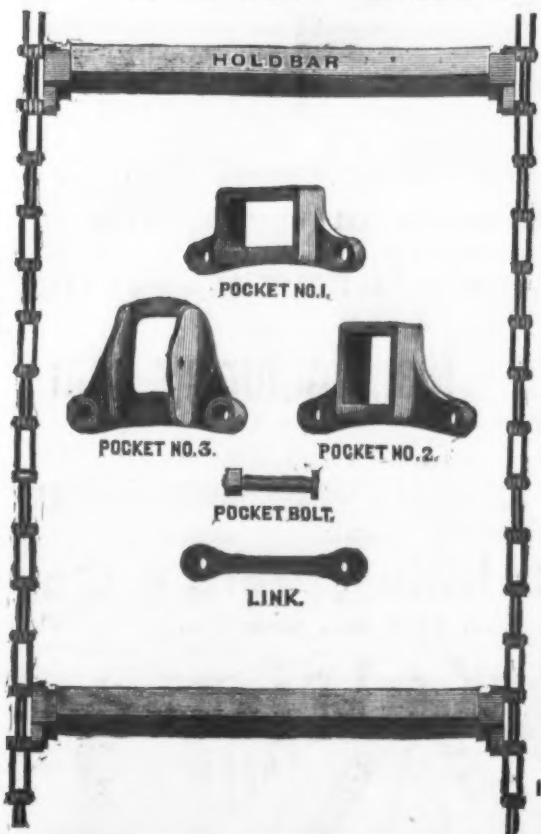


182 Fulton St.,

NEW YORK.

PIANOS

Stool, Cover and Book only \$14.75
Organs, 15 Stops, 4 oct. Reeds, 8 Oct.
Book, only \$2.00. Paper free.
DAN'L E. BEATTY, Washington, D.C.

ICE CHAIN.

We are prepared to furnish promptly all kinds of
Flat Link Chains.

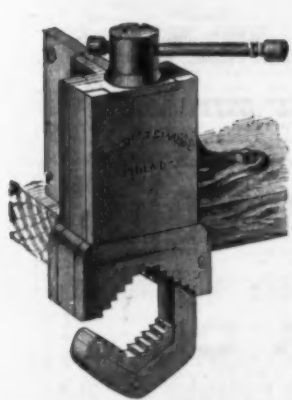
We have a book showing 100 different sizes of Links, which will be sent upon application.

Providence Tool Co.,
PROVIDENCE, R. I.

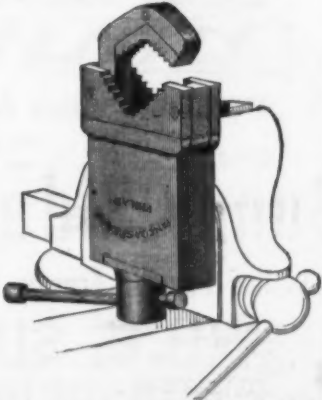
Boston Agency,
13 & 15 Pearl St.
J. H. WORK.

New York Agency,
11 Warren Street,
HENRY B. NEWHALL.

Chicago Agency,
163 & 165 Lake St.
S. H. & E. Y. MOORE.

IMPROVED PIPE-FITTERS' VISE.

STRONG,
LIGHT,
EFFICIENT,
CHEAP.



To meet the requirements of the large number of persons who have use for such an article, we invite attention to our Improved Pipe Vise. This Vise can be used either as a permanent fixture to work-bench, attached to angle plate or can (unlike others) be held between the jaws of any Machinist's or Blacksmith's Vise; the movable jaw being OPEN ON SIDE permits work to be gripped at any desired point without slipping it in from end, and allows of FIRMNESS AND SECURITY; the Box is made of Malleable Iron, the Screw of Wrought Iron, and the remainder of Solid Steel throughout. The Steel Gripping Jaws can be duplicated and replaced at any time when worn out. It is a very convenient tool, well adapted to the wants of Plumbers, Pump Fitters, Well-Drivers, and all who have use for a tool that is strong, light, efficient and cheap which can be readily carried about with kit of tools.

MANUFACTURED BY

PANCOAST & MAULE,
243 and 245 South Third Street, Philadelphia.

Wheeler, Madden & Clemson
MFG. CO.,
MIDDLETOWN, - - - NEW YORK.

Manufacturers of
WARRANTED CAST STEEL

SAWS

Of every description, including
Circular, Shingle, Cross-Cut, Mill, Hand,
WOOD SAWS, Etc., Etc.

AMERICAN SAW CO.,

Manufacturers of
Movable Toothed Circular Saws,
PERFORATED CROSS-CUT SAWS
And SOLID SAWS of all kinds.
Trenton, N. J.

HUNDLEY & HANKS,
PROPRIETORS OF
NORTH CAROLINA HANDLE CO.



MANUFACTURERS OF
Handles and Spokes,
79 Reade Street and 97 Chambers Street, - - - NEW YORK.
HARDWARE COMMISSION MERCHANTS.



TURNED MACHINE SCREWS,
One-sixteenth to five-eighths diameter.
Heads and points to sample.
IRON, STEEL and BRASS.
JOHN FELLOWS,
(Successor to LYON & FELLOWS.) Factory and Office, 14 Dunham Place, Williamsburgh, N. Y.



Manufacturers of GALVANIZED PUMP CHAIN FOR CHAIN PUMPS.



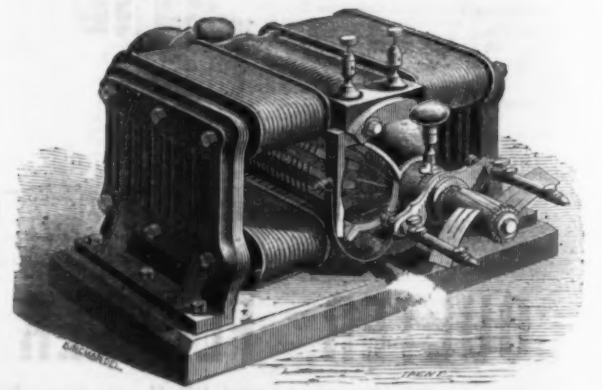
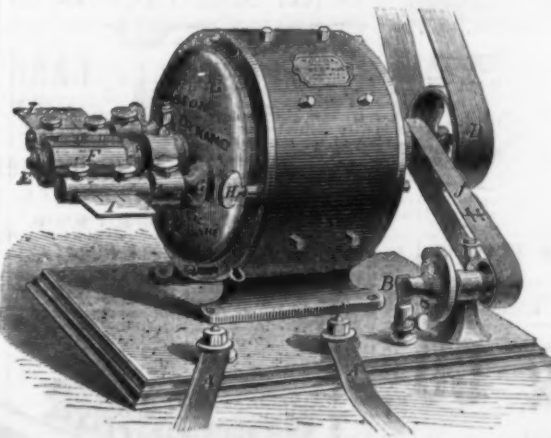
PAT. OCT. 13, 1866.
PAT. FEB. 29, 1876.
REISS. JUNE 12, 1877.
PATENT
Expanding, Self-Draining
RUBBER BUCKET.
Manufactured only by
L. M. RUMSEY & CO.

WESTON DYNAMO-ELECTRIC MACHINE CO.

286 Washington Street, Newark, N. J., U. S. A.,

MANUFACTURERS OF

Machines for Electric Light, Electrotyping and Electro-Plating.



ARE MAKING

THE MOST POWERFUL, SIMPLE AND COMPACT ELECTRIC LIGHT MACHINE IN THE WORLD.

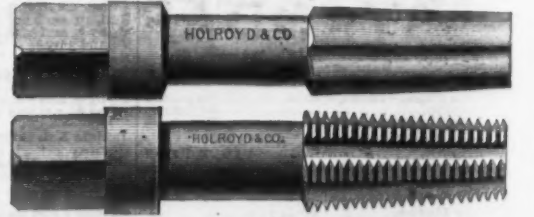
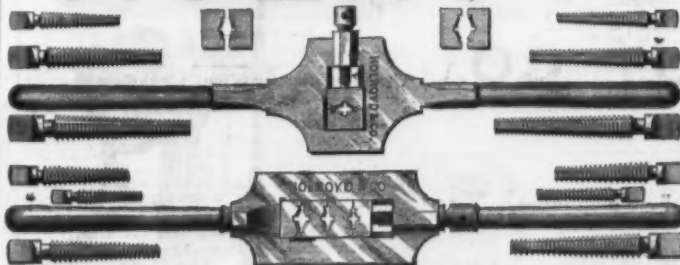
By actual tests this machine has been found to yield more than double the amount of light per horse-power obtained from the best machines built in this country.

Please send full particulars regarding buildings or localities to be lighted, available power, &c.

Centennial Gold Medal American Institute, 1876. Medal of Superiority, American Institute, 1877.
Centennial Medal, Philadelphia, 1876. Paris Medal, 1878.

HOLROYD & CO.,

Waterford, N. Y.



ARMSTRONG'S

Adjustable Stock and Dies

For Pipe and Bolts,

Have the following advantages:

1st.—The Armstrong Improved Dies can be adjusted to the variations in the size of fittings.

2d.—The Armstrong Dies, by reason of their peculiar cutting edge, can be worked with much less labor, and accomplish the desired results in less time, than with the solid Die.

3d.—The Armstrong Dies have a double taper, that is, the taper at the entrance for the first few threads is greater in degree than the standard taper, which forms a lead to the Dies, causing them to start on the pipe without filing, even when there is a swell or burr, and requiring no pressure whatever to start the Dies on the pipe.

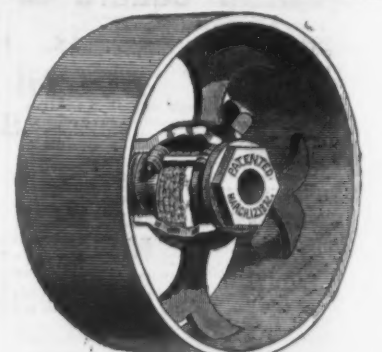
4th.—The Armstrong Dies being made in two parts instead of one (as in the solid Die), can be more perfectly constructed; the cutting edges reached more directly; the work done with greater precision and uniformity, by which they accomplish a much better result.

5th.—The Armstrong Dies can be sharpened without drawing the temper, and can be kept in good condition easier and with less expense than any other Dies ever offered to the public. A mechanic can sharpen these Dies, and is not obliged to send them to the manufacturer, as is the case with solid Dies when they become dull.

6th.—The Armstrong Dies are interchangeable in the stock, and although adjustable, do not need adjusting to cut the standard size for which the dies are made. The adjusting is only done when the irregularity or variations in the fittings make it necessary. There are corresponding marks (A) on the Stock and on the Dies (B) and when these marks are brought into line the Dies will cut the standard size.

For sale by leading dealers in Hardware and Steam and Gas Fitters' Tools. For further particulars address,

F. ARMSTRONG, Bridgeport, Conn.



SELF-LUBRICATING

Loose Pulleys.

W. OESTERLINE,

39 Allison St., CINCINNATI, OHIO.
Send for Circulars and Price List.

HYDRAULIC JACKS AND PUNCHES,

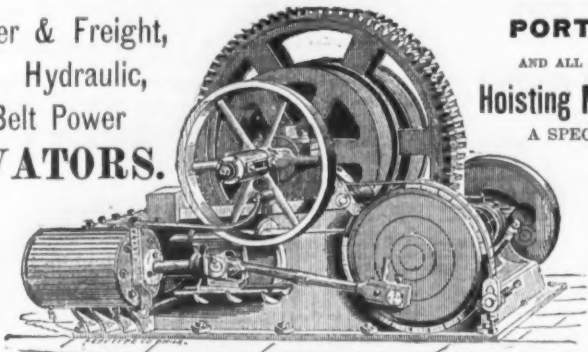
FOR
Raising Heavy Weights,
Punching Iron, &c.

HYDRAULIC PRESSES

On hand and made to order.
Second-hand Hydraulic Presses
bought and sold.
Machinery for Polishing and
Buffing Metals. Send for Circular.

E. LYON & CO.,
470 Grand Street,
NEW YORK.

Passenger & Freight,
Steam, Hydraulic,
and Belt Power
ELEVATORS.



PORTABLE
AND ALL KINDS OF
Hoisting Machinery
A SPECIALTY.

IRON FURNACE HOIST,

For Handling Stock to Top of Stack with One or Two Platforms.

STOKES & PARRISH, 3001 Chestnut St., Philadelphia.

SHAPLEY ENGINE.

Patented Feb. 10, 1874.
Reissued June 29, 1875.

Compact, Practical, Durable and Economical.

Acknowledged to be the best in use. This boiler stands unrivaled.

MANUFACTURED BY

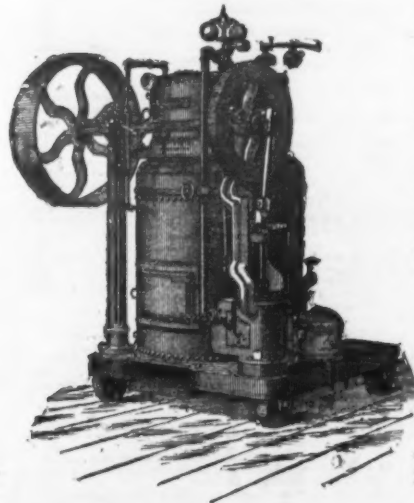
SHAPLEY & WELLS,

Binghamton Iron Works,
Binghamton, N. Y.

MANUFACTURERS OF

Stationary Engines and Boilers.

Also Machinery for Mills of all kinds and Tanneries. Also their celebrated Bark Mills, acknowledged to be the best. Send for reduced price list circular.



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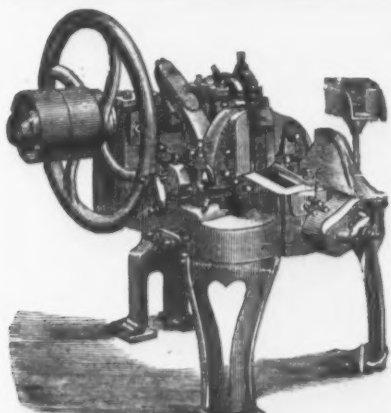
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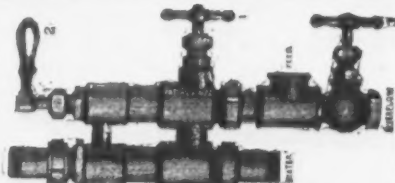
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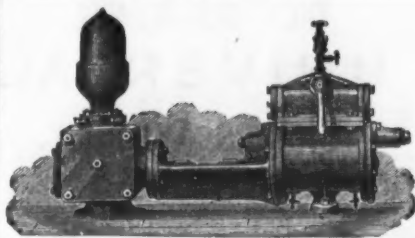


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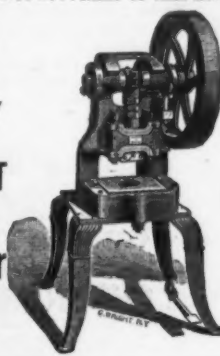
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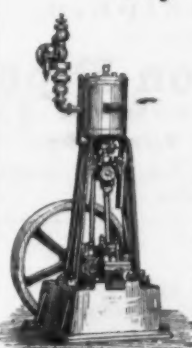
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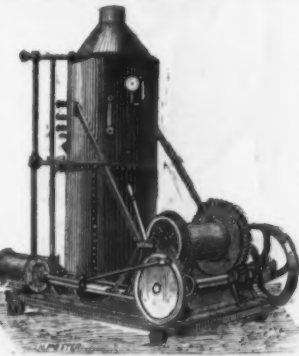
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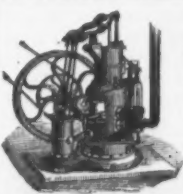


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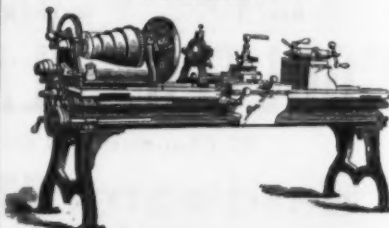
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3	23.00	25.00	2.50
3 1/2	27.00	29.00	3.00
4	30.00	32.00	3.50
4 1/2	34.00	36.00	4.00
5	40.00	42.00	4.50
5 1/2	45.00	47.00	5.00	....
6	50.00	52.00	5.50	....
6 1/2	55.00	57.00	6.00	....
7	60.00	62.00	6.50	....
7 1/2	65.00	67.00	7.00	....
8	70.00	72.00	7.50	....
8 1/2	75.00	77.00	8.00	....
9	80.00	82.00	8.50	....
9 1/2	85.00	87.00	9.00	....
10	90.00	92.00	9.50	....
10 1/2	95.00	97.00	10.00	....
11	100.00	102.00	10.50	....
11 1/2	105.00	107.00	11.00	....
12	110.00	112.00	11.50	....
12 1/2	115.00	117.00	12.00	....
13	120.00	122.00	12.50	....
13 1/2	125.00	127.00	13.00	....
14	130.00	132.00	13.50	....
14 1/2	135.00	137.00	14.00	....
15	140.00	142.00	14.50	....
15 1/2	145.00	147.00	15.00	....
16	150.00	152.00	15.50	....
16 1/2	155.00	157.00	16.00	....
17	160.00	162.00	16.50	....
17 1/2	165.00	167.00	17.00	....
18	170.00	172.00	17.50	....
18 1/2	175.00	177.00	18.00	....
19	180.00	182.00	18.50	....
19 1/2	185.00	187.00	19.00	....
20	190.00	192.00	19.50	....
20 1/2	195.00	197.00	20.00	....
21	200.00	202.00	20.50	....
21 1/2	205.00	207.00	21.00	....
22	210.00	212.00	21.50	....
22 1/2	215.00	217.00	22.00	....
23	220.00	222.00	22.50	....
23 1/2	225.00	227.00	23.00	....
24	230.00	232.00	23.50	....
24 1/2	235.00	237.00	24.00	....
25	240.00	242.00	24.50	....
25 1/2	245.00	247.00	25.00	....
26	250.00	252.00	25.50	....
26 1/2	255.00	257.00	26.00	....
27	260.00	262.00	26.50	....
27 1/2	265.00	267.00	27.00	....
28	270.00	272.00	27.50	....
28 1/2	275.00	277.00	28.00	....
29	280.00	282.00	28.50	....
29 1/2	285.00	287.00	29.00	....
30	290.00	292.00	29.50	....
30 1/2	295.00	297.00	30.00	....
31	300.00	302.00	30.50	....
31 1/2	305.00	307.00	31.00	....
32	310.00	312.00	31.50	....
32 1/2	315.00	317.00	32.00	....
33	320.00	322.00	32.50	....
33 1/2	325.00	327.00	33.00	....
34	330.00	332.00	33.50	....
34 1/2	335.00	337.00	34.00	....
35	340.00	342.00	34.50	....
35 1/2	345.00	347.00	35.00	....
36	350.00	352.00	35.50	....
36 1/2	355.00	357.00	36.00	....
37	360.00	362.00	36.50	....
37 1/2	365.00	367.00	37.00	....
38	370.00	372.00	37.50	....
38 1/2	375.00	377.00	38.00	....
39	380.00	382.00	38.50	....
39 1/2	385.00	387.00	39.00	....
40	390.00	392.00	39.50	....
40 1/2	395.00	397.00	40.00	....
41	400.00	402.00	40.50	....
41 1/2	405.00	407.00	41.00	....
42	410.00	412.00	41.50	....
42 1/2	415.00	417.00	42.00	....
43	420.00	422.00	42.50	....
43 1/2	425.00	427.00	43.00	....
44	430.00	432.00	43.50	....
44 1/2	435.00	437.00	44.00	....
45	440.00	442.00	44.50	....
45 1/2	445.00	447.00	45.00	....
46	450.00	452.00	45.50	....
46 1/2	455.00	457.00	46.00	....
47	460.00	462.00	46.50	....
47 1/2	465.00	467.00	47.00	....
48	470.00	472.00	47.50	....
48 1/2	475.00	477.00	48.00	....
49	480.00	482.00	48.50	....
49 1/2	485.00	487.00	49.00	....
50	490.00	492.00	49.50	....
50 1/2	495.00	497.00	50.00	....
51	500.00	502.00	50.50	....
51 1/2	505.00	507.00	51.00	....
52	510.00	512.00	51.50	....
52 1/2	515.00	517.00	52.00	....
53	520.00	522.00	52.50	....
53 1/2	525.00	527.00	53.00	....
54	530.00	532.00	53.50	....
54 1/2	535.00	537.00	54.00	....
55	540.00	542.00	54.50	....
55 1/2	545.00	547.00	55.00	....
56	550.00	552.00	55.50	....
56 1/2	555.00	557.00	56.00	....
57	560.00	562.00	56.50	....
57 1/2	565.00	567.00	57.00	....
58	570.00	572.00	57.50	....
58 1/2	575.00	577.00	58.00	....
59	580.00	582.00	58.50	....
59 1/2	585.00	587.00	59.00	....
60	590.00	592.00	59.50	....
60 1/2	595.00	597.00	60.00	....
61	600.00	602.00	60.50	....
61 1/2	605.00	607.00	61.00	....
62	610.00	612.00	61.50	....
62 1/2	615.00	617.00	62.00	....
63	620.00	622.00	62.50	....
63 1/2	625.00	627.00	63.00	....
64	630.00	632.00	63.50	....
64 1/2	635.00	637.00	64.00	....
65	640.00	642.00	64.50	....
65 1/2	645.00	647.00	65.00	....
66	650.00	652.00	65.50	....
66 1/2	655.00	657.00	66.00	....
67	660.00	662.00	66.50	....
67 1/2	665.00	667.00	67.00	....
68	670.00	672.00	67.50	....
68 1/2	675.00	677.00	68.00	....
69	680.00	682.00	68.50	....
69 1/2	685.00	687.00	69.00	....
70	690.00	692.00	69.50	....
70 1/2	695.00	697.00	70.00	....
71	700.00	702.00	70.50	....
71 1/2	705.00	707.00	71.00	....
72	710.00	712.00	71.50	....
72 1/2	715.00	717.00	72.00	....
73	720.00	722.00	72.50	....
73 1/2	725.00	727.00	73.00	....
74	730.00	732.00	73.50	....
74 1/2	735.00	737.00	74.00	....
75	740.00	742.00	74.50	....
75 1/2	745.00	747.00	75.00	....
76	750.00	752.00	75.50	....
76 1/2	755.00	757.00	76.00	....
77	760.00	762.00	76.50	....
77 1/2	765.00	767.00	77.00	....
78	770.00	772.00	77.50	....
78 1/2	775.00	777.00	78.00	....
79	780.00	782.00	78.50	....
79 1/2	785.00	787.00	79.00	....
80	790.00	792.00	79.50	....
80 1/2	795.00	797.00	80.00	....
81	800.00	802.00	80.50	....
81 1/2	805.00	807.00	81.00	....
82	810.00	812.00	81.50	....
82 1/2	815.00	817.00	82.00	....
83	820.00	822.00	82.50	....
83 1/2	825.00	827.00	83.00	....
84	830.00	832.00	83.50	....
84 1/2	835.00	837.00	84.00	....
85	840.00	842.00	84.50	....
85 1/2	845.00	847.00	85.00	....
86	850.00	852.00	85.50	....
86 1/2	855.00	857.00	86.00	....
87	860.00	862.00	86.50	....
87 1/2	865.00	867.00	87.00	....
88	870.00	872.00	87.50	....
88 1/2	875.00	877.00	88.00	....
89	880.00	882.00	88.50	....
89 1/2	885.00	887.00	89.00	....
90	890.00	892.00	89.50	....
90 1/2	895.00	897.00	90.00	....
91	900.00	902.00	90.50	....
91 1/2	905.00	907.00	91.00	....
92	910.00	912.00	91.50	....
92 1/2	915.00	917.00	92.00	....
93	920.00	922.00	92.50	....
93 1/2	925.00	927.00	93.00	....
94	930.00	932.00	93.50	....
94 1/2	935.00	937.00	94.00	....
95	940.00	942.00	94.50	....
95 1/2	945.00	947.00	95.00	....
96	950.00	952.00	95.50	....
96 1/2	955.00	957.00	96.00
97	960.00	962.00	96.50
97 1/2	965.00	967.00	97.00
98	970.00	972.00	97.50
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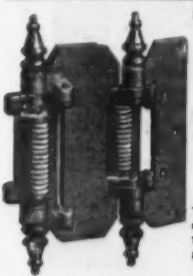
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The Emperor Don Pedro, accompanied by Director General Goshorn, Superintendent Albert, and others, visited Machinery Hall at the Centennial on the evening of June 28th. Among other things inspected, at the invitation of E. M. BOYNTON, of New York, they witnessed a trial of the New Lightning Saw, patented March 26, 1876. Two men, with one of these saws, cut off a sound log of gum-wood, one foot extreme diameter, in seven seconds, or at the rate of a cord of wood in five minutes. Messrs. Corlies, Morell, Lynch, and other members of the commission, witnessed the trial and timed the cutting. The Emperor remarked, "That was fast, very fast cutting." Last evening the Emperor made another examination of the saw. Philadelphia Press, June 30.

"Boynton's Saws were effectually tested before the Judges at the Philadelphia Fair, July 6th and 7th. An ash log, 11 inches in diameter, was sawed off, with a 4 1/2 foot lightning cross-cut, by two men, in precisely 6 seconds, as timed by the chairman of the Centennial Judges of Class Fifteen. The speed is unprecedented, and would cut a cord of wood in 4 minutes. The representatives of Russia, Austria, France, Italy, Spain, Belgium, Sweden, England, and several other countries, were present, and expressed their high appreciation." Received Medal and Highest Award of Centennial World's Fair, 1876. \$1000 challenge was prominently displayed for six months, and the numerous saw manufacturers of the world dared not accept it, or test in a competition so hopeless.

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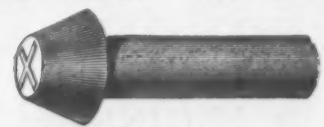
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